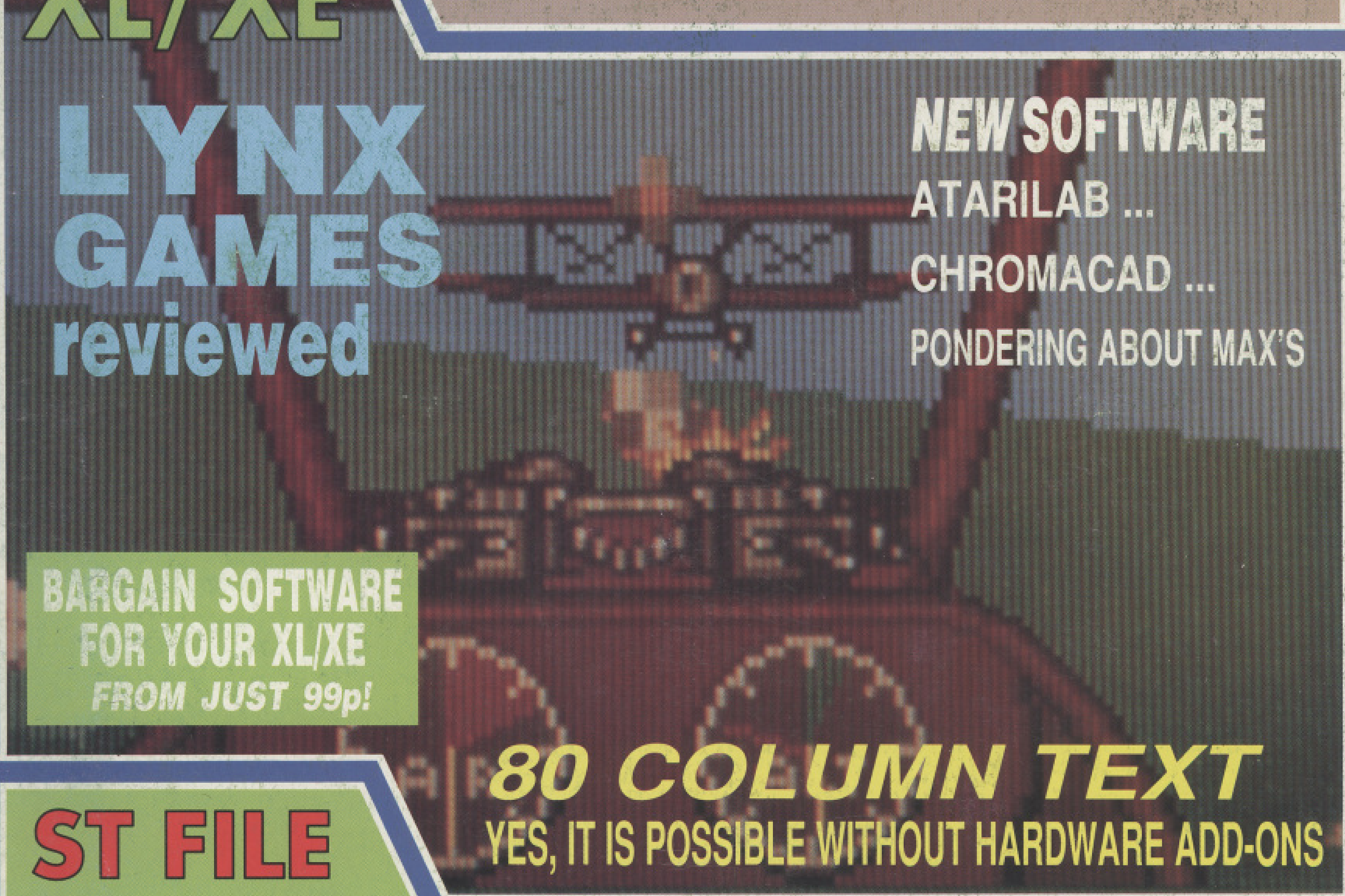
PAGE 6 PUBLISHING's

NEW ATARI USER

Issue 56 £1.95
June/July

XL/XE



LYNX GAMES reviewed

NEW SOFTWARE
ATARILAB ...
CHROMACAD ...
PONDERING ABOUT MAX'S

BARGAIN SOFTWARE FOR YOUR XL/XE
FROM JUST 99p!

80 COLUMN TEXT
YES, IT IS POSSIBLE WITHOUT HARDWARE ADD-ONS

ST FILE

ALTERNATE WORLDS
WHICH TO CHOOSE - HEIMDALL OR SHADOWLANDS?

PRO-24
OLD BUT GOOD
SHOULD YOU STILL BUY IT?

PD & PRINTERS

06
9 770958 770027

AT LAST! CASSETTE BARGAINS FROM PAGE 6!

New cassettes from only 95p each including postage!

Enhance your collection with these brand new game cassettes available now from PAGE 6 and NEW ATARI USER



PROTECTOR

Assigned to Fort Rucker, the US Army Helicopter Training School based in the Nevada desert, your aim is to become the best chopper pilot this side of the Iron curtain. A real Protector! Your mission consists of a strategic battle of wits between yourself and either another pilot or a computer controlled RPV (Remote Pilotless Vehicle)



ROGUE

You are the ROGUE. Your mission is to search the Dungeons of Doom for the Amulet of Yendor. In the dungeons you will find many things to aid the quest for the Amulet. You will also encounter fearsome monsters and fiendish traps that will challenge all your skills



UNIVERSAL HERO

GASP! Only seven seconds left to save the planet! How will you do it Burt? Universal Hero has to save his skin and everybody else's by finding bits to repair a shuttle to get to a planet to pick up the spares to mend a space freighter which is out of control and about to blow him and his chances of getting back to earth to atoms. A nail biting, multi-dimensional, hi-res Awesome Arcade Adventure!



HENRY'S HOUSE

Little Henry has shrunk. He must navigate his way through the royal household to find the cure. Avoiding all the obstacles in his path, from terrible toothbrushes, through pestiferous parrots and chefs chasing chickens, to a final encounter with the vicious vampire! Acknowledged by all reviewers as one of the best Atari games



BOMB FUSION

A terrorist gang has planted bombs throughout the Sellerscale Nuclear Processing Plant and you, as ex super hero (ex after the 'Boris Affair') have to go in and save the plant and possibly the Northern Hemisphere from destruction



MILK RACE

Cycling 1,000 miles is no mean feat - and you could end up feeling pretty exhausted by the time you've finished playing this superb race simulation designed especially in conjunction with the Milk Race



GUN LAW

Four months of bloody alien attacks have taken their toll - all the surviving inhabitants have fled and arson attacks have been made on your weapon stores, they destroyed what you could not carry away. You are left to fight alone against ruthless and bloodthirsty killers with just a single machine gun



REVENGE II

The Mutated 90 foot high, laser spitting death camels have rebelled against their captors the Zzyaxians and are out for revenge! All action, highly graphical shoot-em-up from Jeff Minter



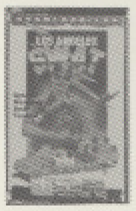
DESPATCH RIDER

Join the growing band of street demons - those fearless horders who terrify the population of the big cities to get the parcels through. Plan your moves to make some money, but don't take too long - time is always short. Gain an instant macho rating and be a despatch rider with this all action simulation



INVASION

Mobilize your units and prepare for battle. This all action space conflict requires skill, strategy and tactics. You must destroy the weather control station in order to win the battle but every move you make the enemy will counter, and they're waiting for you to make just one fatal slip up



LOS ANGELES SWAT

Special Assignment. Rescue the hostages from the terrorist gangs holding out in West L.A. Clean up the streets. Blow away the bad guys and be a hero on network T.V.! Fail and you won't be coming back to watch it. All action joystick bending combat for those with the skill to survive!



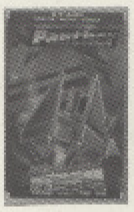
SPEED ZONE

Enter the Speedzone in a frantic defence against marauding alien forces. A survey ship sent into the area comes under attack. As an enemy vessel draws closer your "STARFIRE" class attack craft is launched



FEUD

To win at Feud you must "out-spell" your rival Wizard Leanoric. In Kieke's herb garden you will find the ingredients for your spells but tread carefully as strange things can happen in this game of magic and mystery



PANTHER

Save the last humans on Xenon before the alien hordes turn them into Sunday roast! Take your ground attack ship through this 3D scrolling mega shoot-em-up with great graphics and unbelievable soundtrack

SEE MORE CASSETTES ON OUR ACCESSORY SHOP PAGES!

Any one cassette £1.95 - any two £3.50 - any three £5.00 - any 4 £6.50 - any five £7.50 or select ANY TEN CASSETTES FOR JUST £9.50!

All prices are inclusive of postage

Use the order form on our Accessory Shop pages or just write or phone. Credit card orders accepted by telephone on 0785 213928

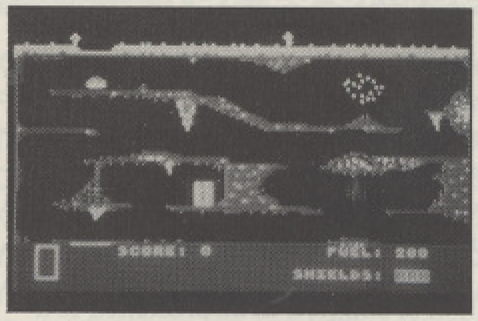
Send to: PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR

Overseas please add 25% postage for Air Mail

'The magazine for the Dedicated Atari User'

CONTENTS

Issue 56 - June/July 1992



DEVIL'S DOMAIN

Not in the magazine but a nice disk bonus this time

LYNX JINKS reviews by John Sweeney *Over half a dozen new Lynx games*	6
BLOCK BUSTER by Darren Knowles *A classic game in Turbo Basic*	8
NUMERIC FUNCTIONS by Ann O'Driscoll *Some of the mysteries of numbers dispelled*	11
80 COLUMN TEXT by Matthew Bennett *A routine to get you 80 columns on screen*	14
ATARILAB reviewed by Ian Finlayson	18
KRUNCH! by David Rawlings *A hexadecimal machine code autorunning loader*	20
THE TIPSTER Here again!	24
FRACTAL TRIANGLES by Richard Welsh	27
CHROMACAD MODEL BUILDER review by Ian Finlayson	28
XL/XE PUBLIC DOMAIN Edmund Blake's column	30
A MIXED BAG FROM APX reviewed by Paul Rixon	32
PONDERING ABOUT MAX'S by Ed Hall *A brand new game from the USA*	34
ENCHANTER by Linda Naysmith	36
WHERE ARE THEY NOW? asks Mark Hutchinson	38
REVIEWS - *SPINDIZZY and ROBOTRON*	41
DISK BONUS - DEVIL'S DOMAIN by Richard Gore	40
THE ACCESSORY SHOP	43

ST FILE

KNIGHTS OF THE SKY reviewed by John S Davison	41
ALTERNATE WORLDS by John Sweeney *Heimdall and Shadowlands - which to choose?*	48
MAKING MUSIC by John S Davison	50
ALCATRAZ reviewed by John Davison	52
FLIGHT OF THE INTRUDER	54
PIT FIGHTER reviewed by Damon Howarth	56
ST GAMES - **Ultimate Golf and Resolution 101**	57
PAUL RIXON'S PD WORLD	58
WHERE IN THE WORLD? *Geography Tutor reviewed by John S Davison*	60
ST GAMES - **Mindbender and James Pond**	61
RACE DRIVIN' reviewed by John Davison	62
THE STOS COLUMN presented by Dion Guy	63
THINGS TO COME *Damon Howarth on the European Computer Trade Show*	66

EDITORIAL 4 **CONTACT** 42

SUBSCRIPTIONS

Annual subscription rates (6 issues)

UK	£12.00
Europe (Air Mail)	£15.00
Elsewhere (Surface)	£15.00
Elsewhere (Air Mail)	£21.00

Overseas rates reflect only the difference in postal costs

NEW ATARI USER ON DISK

A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subcription. Single price £2.95 per disk, Subscription rates (6 issues)

UK	£25.00
Europe	£32.00
Elsewhere (sea)	£32.00
Elsewhere (Air)	£42.00

Please make cheques payable to PAGE 6 PUBLISHING and send to the Editorial address shown below

SUBMISSIONS

PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it! Appropriate payment will be made for all published programs and articles, all payments being made at the end of the second month shown on the cover of the issue concerned.

The next issue of NEW ATARI USER will be on sale 30th July
Editorial copy date is 22nd June

Editorial address: P.O. Box 54, Stafford, ST16 1DR, ENGLAND Tel. 0785 213928: FAX 0785 54355
Editor & Publisher: Les Ellingham - Advertising Sandy Ellingham
Printed by Stephens & George, Merthyr Tydfil 0685 5351 - Page layout by PAGE 6 - Compugraphic output by ALL SET Phototypesetting 0782 824183. Origination by Ebony 0579 47880 - Newstrade Distribution by Diamond Europress, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, E. Sussex TN35 4NR Tel. 0424 430422
NEW ATARI USER is published bi-monthly on the last Thursday of the month prior to cover date

PAGE 6 PUBLISHING's
NEW
ATARI
USER

Editorial

Issue 56
June/July 1992
'The Magazine for the Dedicated Atari User'
ISSN No. 0958-7705

THE CREDITS

All of the usual stuff is on page 3 but here are the people who made this issue possible.

Les Ellingham has discovered that having holidays and tying to publish a magazine just ain't compatible! Had to start this one on the day after coming home (couldn't even unpack!) and boy has it been a struggle!

Sandy did the unpacking (told you I didn't have time) as well as checking out the ads, chasing for review stuff, doing the accounts and more. In fact, this time, she did a lot more than Paulette!

Paulette is getting bored because you folks are not ordering as much software and stuff as you used to. How about sending in an order to keep her on her toes and stop her keep asking what she can do next?

The Regular Contributors, who provide the backbone of the magazine and can generally be relied upon to come up with good articles and reviews, are ....

John S Davison **John Davison jr**
John Sweeney **Paul Rixon**
Damon Howarth **Ian Finlayson**
Dion Guy **The Tipster**

All other contributors for this issue are individually credited alongside their articles or programs. Thanks to everybody for sharing their enthusiasm with other Atari users.

The picture last time was Turboflex (told you it wasn't a very good picture) and this one will be a screen shot from one of the **LYNX games** reviewed this issue. Makes a change.

If you read the top you will know that this one has been a struggle and one reason is that for the first week I was without a CD player! Had to go in for repair and I didn't realise just how much the music towards getting things done. It finally came back (after 5 weeks of good, efficient, British workmanship!) and I could stick on some music. Thought I would crack up but Bruce Springsteen, Bruce Cockburn, Buffy St. Marie, Nic Jones (Penguin Eggs is still brilliant) and, yes, The Incredible String Band came to the rescue, restored the sanity, and helped to get this issue finished. Great stuff, now where's the other ISB's? The little competition last issue was won by Mr Anderson up in Scotland who sent in the only postcard saying that Rockport Sunday was by Tom Rush and, just to show what superb taste he has, he chose Nothing But A Burning Light as his prize. Good fun that - lets me know that there are kindred spirits in this world - so we'll have another little competition this issue. A free CD to the first person to say which recent CD featuring several artists has a track by Boo Hewerdine. Gotcha!

The next issue of NEW ATARI USER could feature YOUR article or program, so SEND IT IN NOW!

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! With the exception of the final output on a Linotron and the use of an in-house repro camera for the photos and listings everything is done on the ST. Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, an Atari Laser Printer, Citizen 124D printer, Philips CM8833 monitor, 130XE, XF551 disk drive, 810 disk drive, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, Tari-Talk, Turbo Basic and various custom written programs on the XL/XE. Articles and programs submitted on XL/XE disks are subjected to various custom written programs before being transferred across to the ST via TARITALK. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. A disk with the finished pages as Postscript files is sent to a typesetting bureau to be output on a Linotron and, hey presto, finished pages are sent back exactly as you see them. It really does work! All that is left is to drop in the listings and photos.
Well, it's not quite as easy as that but you get the idea!

KEEP PUMPING ON

Over in the USA there are no magazines left that cater for the XL/XE, in fact we are possibly the only major magazine left, but there are still a good number of keen users who want to read about and program the classic Atari machine. We recently received, from a couple of dedicated readers, details of a campaign organised by one dedicated Atarian to get up a petition, or rather a declaration of support, to be presented to a publisher in order to get an 8-bit magazine up and running again. We would have mentioned it in full in this issue but the closing date for registering your support was 15th April so it would have been of little use. Let us hope that the target of 500 supporters was realised and that we might, once again, see an 8-bit magazine from the States. In the meantime ....

The situation is the same in this country you know. You still have New Atari User but support from others is dropping away gradually. If you check out the EXCEL advert this issue, you will see the announcement of the final issue of EXCEL (unless you decide otherwise) because Robert Stuart is no longer getting enough support from Atari owners. If you are at all interested in continued support for your machine then you have to show your support. Copies of EXCEL I have seen have been good, so keep it going. Meanwhile ...

Over on the Continent, things Atari are still going fairly strong but, like us, the folks providing the software and support need a good response from the Atari owning public. That's you. This issue you will see a couple of adverts from Germany and Holland offering products for your XL/XE. Now, it has always been risky for overseas companies to advertise in English publications because we are a very insular people and we don't like to send abroad for products do we? Especially if we have to send cash (can you trust these foreigners?) or have to go to all the hassle of getting foreign currency or bank drafts. Things are different now, or they should be. You should no longer be afraid to order goods from overseas and you really ought to contact both KE-SOFT and MEGA MAGAZINE to show them that you still care about your Atari. These folks have paid good money for their adverts, money that goes to bringing you this magazine, and it would be a great pity if they did not get a good response. The future of your machine is in the hands of folks like these (and the few English companies that advertise in these pages). I can only point out the situation, the solution is in your hands. Give it a go.

DISNEY TIME

Just as I completed this issue we had a nice press release from Infogrames concerning software they will be releasing on the ST from the Disney Company, and very good it looks too. This prompted me to recall a trip round the Animation studios at MGM where you can watch all the incredibly talented people who create films like The Little Mermaid and Roger Rabbit actually at work. One thing that struck me is that nearly all of them work with headphones on listening to their favourite music. In fact many of their desks look like my office with CDs stacked up beside the drawing board (or computer) as an essential part of the working environment. If you have ever read the ravings in the Credits column, you will know that I have the addiction but it is nice to know that it is something shared with creative people on the other side of the ocean. Maybe I am not so crazy after all!

THE LACK OF MAILBAG

A few things conspired to squeeze out the Mailbag section this issue but your letters will be back again next time. If you miss Mailbag, why not take the time to write us a letter for inclusion next time? If all inspiration fails you could even just write and say how much you miss Mailbag!

Les Ellingham

MILES BETTER SOFTWARE

TOP 20 CASSETTES

Kick Off	2.99
Fred	2.99
Tomahawk	2.99
Colossus Chess IV	3.99
Kickstart	1.99
Yogi & Greed Monster	2.99
Yogi's Great Escape	2.99
Masterchess	1.99
Plastron	2.99
Fruit Machine	2.99
Mission Shark	2.99
Cavernia	2.99
Joe Blade II	2.99
Speedhawk	2.99
180!	2.99
Arctic Antics	2.99
Henry's House	1.99
Head Over Heels	2.99
World Soccer	2.99
Grand Prix Simulator	2.99

TOP 10 DISKS

Draconus	SOLD OUT
International Karate	4.99
Rampage	2.99
Eternal Dagger	14.95
Silicon Dreams	9.95
Trivial Pursuit	9.95
Mig Alley Ace	4.99
Steve Davis Snooker	2.99
Zaxxon	2.99
Smash Hits 7	2.99

TOP 10 ROMS

Rescue on Fractulas	7.95
Pacman	7.95
Desert Falcon	7.95
Designer's Pencil	4.99
Loderunner	7.95
Fight Night	7.95
Midnight Magic	7.95
Food Fight	4.99
American Football	7.95
One on One Basketball	7.95

GAMES

	Cass.	Disk
Spy vs Spy Arctic Antics	2.99	3.99
Boulderdash 2	2.99	6.99
Trailblazer		9.95
Touchdown Football		6.99
Spitfire 40		6.99
Preppie 2		4.99
Colossus Chess 3		4.99
Joe and the Nuclear Caverns		4.99
Mig Alley Ace		4.99
Night Mission Pinball		6.99
International Karate		4.99
Pitstop II		6.99
Atari Compilation (5 games - Star Raiders, Tennis etc).	4.99	
Bop 'n' Wrestle		4.99
Jocky Wilson's Darts		4.99
Ghostbusters		4.99
Ninja Commando		4.99
Mountain Bike Racer		4.99
Pirates of Barbary Coast		4.99
Speed Ace		4.99
World Soccer		4.99
Zybex		4.99
Living Daylights		2.99
Smash Hits 7		2.99
Polar Pierre		2.99
Mr. Robot		2.99
Beta Lyrae		2.99
Arkanoid		2.99
Druid		2.99
Crumbles Crisis		2.99
Freaky Factory		2.99
Laser Hawk		2.99
Sidewinder		2.99
Nuclear Nick		2.99
Sunstar		2.99
Winter Events		2.99
Astrodroid		2.99
Beer Belly Bert		2.99
Hacker		2.99
Plastron		2.99
Quasimodo		2.99
New York City		2.99
Spy vs Spy		2.99
Steve Davis Snooker		2.99
Scooter		2.99
Elektraglide		2.99
Rocket Repairman		2.99
Blue Max		2.99
Space Lobsters		2.99
Nightmares		2.99
Rosen's Brigade		2.99
Zaxxon		2.99

PERIPHERALS

Atari CX80 Trak-ball 8-bit	9.95
Atari CX80 Trak-ball ST/STE	14.95

(Direct mouse replacement)

ADVENTURE/STRATEGY

	Cass.	Disk
Flight Sim. Scenery Disks Nos 1-7 each		9.95
Questron		9.95
Field of Fire		7.95
Jinxter		9.95
Time & Magik		9.95
Ingrid's Back	11.95	11.95
Knight Orc	11.95	11.95
Cloak of Death	2.99	
Gunslinger		9.95
Eternal Dagger		14.95
Theatre Europe		11.95
Panzer Grenadier		16.95
Battlecrusier		16.95
Warship		19.95
Vietnam		9.95
Decision in the Desert	3.99	4.99
Colossus Chess 4	3.99	4.99
Kennedy Approach		6.99
The Count		4.99
Pirate Adventure		4.99
Scapeghost	12.95	12.95
Silicon Dreams	7.95	9.95
Jewels of Darkness	7.95	9.95
Super Huey		6.99
Lancelot		11.95
Sargon III Chess		6.99
Knights of the Desert		9.95
Nato Commander		9.95
U.S.A.A.F.		14.95
Trivial Pursuit		9.95

XL/XE CARTRIDGES

Missile Command	7.95
Star Raiders	7.95
American Football	7.95
Food Fight	4.99
Loderunner	7.95
Barnyard Blaster (Lightgun)	7.95
One on One Basketball	7.95
David's Midnight Magic	7.95
Archon	7.95
Rescue on Fractulas	7.95
Moon Patrol	7.95
Robotron 2084	7.95
Dreadnaught Factor	7.95
Designers Pencil	4.99
Rally Speedway	7.95
Eastern Front 1941	7.95

UTILITIES

	Disk
Mini Office II	14.95
Atari Writer Plus	29.95
Planetarium	16.95

BUDGET CASSETTES

Zeppelin

Fred	2.99
Cavernia	2.99
Stack Up	2.99
Mission Shark	2.99
Mirax Force	2.99
World Soccer	2.99
Phantom	2.99
Zybex	2.99
Speed Ace	2.99
Las Vegas Casino	2.99
Fruit Machine	2.99
Sidewinder	2.99
Fantastic Soccer	2.99
Kenny Dalglish Soccer Manager	2.99
Ninja Commander	2.99
Blinky's Scary School	2.99
Jocky Wilson Darts	2.99
The Living Daylights	2.99
Mountain Bike Racer	2.99

Hi-Tec

Spy vs. Spy	2.99
Space Rider	2.99
Yogi & The Greed Monster	2.99
Ruff 'n' Reddy	2.99
Yogi's Great Escape	2.99

Byte Back

Robot Knights	2.99
Astrodroid	2.99
Speed Run	2.99
Space Lobster	2.99
Fighter Pilot	2.99
Dreadnaught	2.99
Space Wars	2.99
Planet Attack	2.99
Mad Jax	2.99
Roulette Simulator	2.99
Cosmic Pirate	2.99
Warcopter	2.99
Screaming Wings	2.99
Exploding Wall	2.99
Little Devil	2.99
Tomahawk	2.99

Codemasters

Fruit Machine Simulator	2.99
B.M.X. Simulator	2.99
Transmuter	2.99
Red Max	2.99
Grand Prix Simulator	2.99
Advanced Pinball Simulator	2.99

KIXX

Gauntlet	2.99
Footballer of the Year	2.99
Hardball	2.99

Hit Squad

Arkanoid	2.99
Head Over Heels	2.99

Atlantis

Air Rescue	2.99
Dawn Raider	1.99
Pro Golf	2.99
Panik	2.99
League Challenge	1.99
Titan	2.99
Periscope Up	1.99
Encounter	2.99
Gunfighter	1.99
Crack Up	1.99
Survivors	2.99

Alternative

Soccer	1.99
Pro Mountain Bike	2.99

Atarisoft

Star Raiders	2.99
Speedhawk	2.99
Twilight World	2.99
Heartache	2.99
Thunderfox	2.99

Adventuresoft

10 Little Indians	2.99
Secret Mission	2.99
Arrow of Death 1	2.99
Arrow of Death 2	2.99
Golden Voyage	2.99
Mystery Fun House	2.99
Strange Odyssey	2.99
Wizard of Akyrz	2.99
The Time Machine	2.99
Adventureland	2.99
Circus	2.99
Escape from Pulsar 7	2.99
Perseus and Andromeda	2.99
The Count	2.99
Voodoo Castle	2.99
Waxworks	2.99

Firebird

Matta Blatta	1.99
MicroRhythm	1.99
Thrust	1.99

Players

Stratosphere	1.99
Tanium	1.99
Dizzy Dice	1.99
Bubble Trouble	1.99
Joe Blade II	2.99

Miscellaneous

Pengon	1.99
Mr. Dig	1.99
Football Manager	2.99
Chuckie Egg	2.99
Pogotron	2.99
Boulderdash	2.99
Darts	1.99
System 8 Pools	2.99
Turf Form	2.99

Mastertronic

Masterchess	1.99
Protector	2.99
Revenge II	2.99
Crystal Raider	1.99
Amaurote	2.99
Vegas Jackpot	1.99
Kikstart	1.99
Invasion	1.99
On Cue	2.99
Last V8	2.99
Mutant Camels	1.99
Milk Race	1.99
Frenesis	1.99
Panther	1.99
Sidewinder II	2.99
Despatch Rider	1.99
Hover Bovver	1.99
Molecule Man	1.99
Speedzone	2.99
Ninja	2.99
Ghostbusters	2.99
Henry's House	1.99
180!	2.99
Bombfusion	1.99

FULL RANGE OF ATARI 2600 CARTRIDGES IN STOCK

219/221 Cannock Road, Chadsmoor, Cannock, Staffordshire, WS11 2DD
Telephone (0543) 466577/8/9

VISA

Add 50p to orders less than £ 5.00. All prices correct at time of going to press. Access or Visa orders welcome.
Please add £1 per item for overseas
Please make Cheques or Postal Orders payable to "MILES BETTER SOFTWARE"

LYNX JINKS

John Sweeney skips off school to check out loads more Lynx games

The new Lynx 2 is in the shops now - smaller and cheaper (you should be able to get the basic machine for well under £100) with a new button to turn off the backlight when you pause so that the batteries don't run down. The range of games is also increasing rapidly - over 50, and more on the way! Here are some of the latest.

BLOCK OUT

A brilliant 3-D version of Tetris! At the simplest level the pieces are just three or four cubes joined together in a single flat plane so that they are easy to see and manipulate. You have a bird's eye view of the pit and plenty of time to master the simple controls which allow you to rotate a piece in any of the three dimensions and move it in any direction - it takes two minutes for a piece to fall at the slowest level. As usual, completing a layer gets rid of that layer and earns you lots of points.

The blocks are transparent as they fall so that you can work out where to place them but when they land they change colour to show which levels the various pieces have finished up on. It is carefully designed to make it as easy as possible for you to see what is going on. You can change the depth, width, and length of the pit, the complexity of the blocks and the speed of falling. The Basic Blockset has all the flat shapes plus some with bits sticking out so that they are truly 3-D. The Extended Blockset is even worse - bigger pieces and bits sticking out everywhere so that some of them can't lie down flat at all! Some of them you have to turn over a couple of times just to work out what shape they are - by which time it is probably too late!

Three preset options (Flat Fun, 3-D Mania, and Out of Control) provide standard games for you to try. Or if you are really suicidal you can use the Extended Blockset at full speed - just 2 seconds to drop all the way! You won't last long!

VERY addictive - highly recommended!

VIKING CHILD

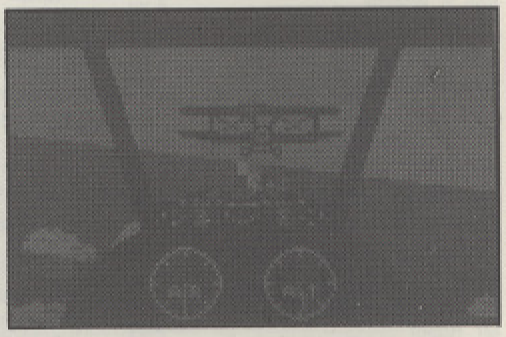
Viking child is a platform/adventure game. You have been called to fulfil a prophecy to defeat the evil god Loki. Each level is a large maze you must fight your way through. The first is fairly straight-forward, just going from left to right but in later levels the route becomes much more complicated. In each level you must defeat Loki's apprentice (the end of level monster), get the key, and unlock the door to the next level.

As in all platform games there are hundreds of nasties attempting to kill you. Defeat them and you will get either points or money to spend on extra weapons, special powers, lives, or health - as long as you can reach a shop before you die! Time is also against you - every time the sand drains from a tiny hourglass you lose a bit of health. Falling doesn't harm you, but if you fall too far you will be stunned for a moment and defenceless against the monsters.

After every couple of levels you get a code so that you can restart from that point instead of having to play through the early levels over and over again.

Highly addictive, Viking Child will having you striving to get just that little bit further each time you play.

WAR-BIRDS



Warbirds is a World War I flight simulator for one to four players; the sole objective being to blast your opponents out of the sky. As a solo mission you have a choice of six levels, varying both in difficulty and in the number of enemies coming at you. You can choose between unlimited lives and ammunition or a specific number of each. In the multi-player version you just have to shoot the hell out of your friends! The controls allow you to steer the plane, shoot your enemies, and also look around you to try and spot incoming enemy aircraft.

There is no new-fangled weaponry in Warbirds, all you have is a machine-gun as you would have had in World War I. You can cut your engines to decrease airspeed and to prevent enemies finding you by the noise of your engine, you can also duck beneath the cloud cover, or even go into the clouds! If working on limited ammunition it is possible, but not easy, to land and replenish your supplies, but don't stay on the ground too long - you are a sitting duck!

The flight graphics are excellent (although a tiny bit jerky in places) with superb digitised pictures of the pilot as he crashes! Very easy to control and great fun to play!

S.T.U.N. RUNNER

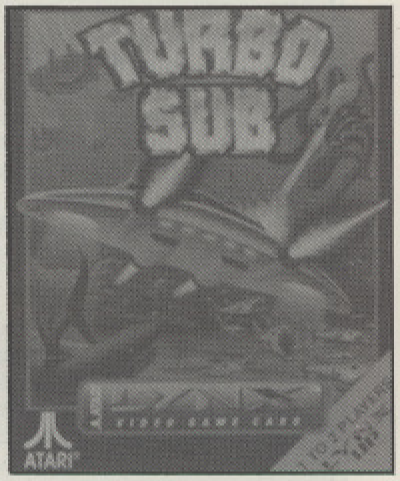
S.T.U.N. Runner is a one-player racing game, set in a Subterranean Underground Network. All the levels are played against the clock, so you must keep moving all the time. You just steer left or right, but to maintain speed you must drive along the

outer sides of the bends and since many of the routes are enclosed tunnels this can mean you end up driving upside down on the ceiling at times!

Unfortunately there are other cars in your way (blast 'em with your lasers!) and planes dropping bombs on you. Whenever you hit anything you slow down, wasting valuable seconds of the very tight time limit. There are useful objects in the mazes boost pads send you whizzing off at incredible speed, ramps fling you into the air, and if you collect enough stars you gain the ultimate weapon the Shockwave, which sends a wave of destruction down the tunnel, killing all the bad guys in sight!

S.T.U.N. Runner's graphics are very good, and move at a breathtaking speed. There are hundreds of excellent sound effects, ranging from a "clang" sound as you hit an armoured drone to a voice which gives you advice. As you progress in the game, the levels get larger and more complex, and you usually run out of time just as you see the finish line. Every five levels there is a "challenge level", where you have to perform tasks such as collecting a certain number of stars or boosts. Once you are experienced you can dive straight in at level 11 and avoid the earlier levels. STUN Runner is a very addictive game, which brings you back for "just one more go" time and time again.

TURBO-SUB



High-speed shoot-em-up above and below the waves. Just steer (in any direction) and shoot as fast as you can. If it moves shoot it, if it doesn't move dodge it! The view is straight ahead from your cockpit - just travel forwards as fast as you can, when DIVE flashes dive and collect as many gems as you can, while still shooting and dodging at high speed.

There is a wide variety of enemies and obstacles - some shoot you, some crash into you, some make you crash into them! If you survive long enough you get the usual end-of-level monsters and then a shop where you can spend your ill-gotten gains. A fully armed ship with multi-blasters, rapid fire, range missiles and mega bombs can do an incredible amount of damage, but I found one of the most useful items to be the tracking device so that you can spend more time worrying about dodging and not have to worry about trying to aim as well! A two-player option allows you to compete for the highest score.

Great graphics and sound effects, fast and furious action - an excellent game!

XYBOTS

Another shoot-em-up, but with a bit more thought about it. Each level is a maze you have to find your way through - if you bought the right mappers at the last shop you can press Option 2 for an overhead view of the level. The main action takes place with a view ahead and you need to keep your wits about you as you race through the maze dodging and firing to avoid death while picking up money, keys, energy and power-ups. Your energy is limited and drains away over time so you must keep moving. There are multiple exits from some levels so you can warp quickly up to the higher levels where you will meet the deadly Master Xybots.

Some of the enemy are easy to kill, others take many shots to destroy, some are armoured and only vulnerable when they are about to shoot you - the timing of waiting, firing and dodging is crucial!

The early levels are very easy, but they soon get complicated with teleports all over the place and killer robots hiding behind corners - and of course your money starts running out so you can't afford the mapping equipment and life gets rather hard.

A compass would have been nice as it is easy to get confused about which way you are facing, and a option to restart at a higher level would have been nice, but Xybots is an excellent game with lots of nice features.

AWESOME GOLF

This is brilliant! A superb implementation of golf on such a tiny system! 1 to 4 players on a choice of 3 courses. You can practice any hole or try out the driving range before you start the actual match. You can choose how strong a wind you want (drifting clouds let you know which direction it is blowing).

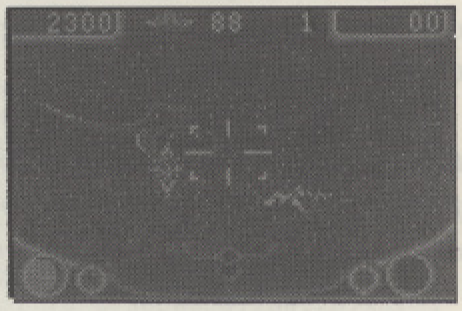
The graphics are great and the controls allow you to scan any part of the hole and zoom in to any part of it to see the detail of the terrain. It's all there - the rough, the fairway, trees to bounce off, sloping greens, water hazards, bunkers, everything.

You can ask your caddy for advice on which club to use, select your club, take aim and then make your shot in the usual computer golf style - press the button to start your swing and a bar moves up and down, press again to control the strength of the swing and again to try and control the exact direction - too early or late and the ball will veer off to the left or right.

In the multi-player version you can give handicaps to allow for weaker or stronger players.

An excellent version of golf - thoroughly recommended to all sporting fans!

Turbo Sub



SUMMARY

Generally the Lynx games continue to maintain a very high standard and now cover a very wide range with something for everyone. My personal favourite this time was Blockout, but they are all worth playing. Recommended Retail Price is £29.99 each, but you should be able to get them for a few pounds less if you shop around.

TURBO BASIC

BLOCK BUSTER

This is the continuing story of the devastating cuboid/spheroid wars. You play the part of the last sphere-warrior that has been sent to the planet of the cuboids with the solitary aim of destroying the mega-cube which is the sole supplier of all the cuboid's power. If you succeed in your mission, then the massive power drain, caused by the illuminated planet the cuboids live on, will cause the planet to shut-down and thus disable the cuboid-warriors forever.

TYPING IT IN

First load the excellent utility Turbo-Basic by Frank Ostrowski and then type out the listing. When you have finished typing out the program and have checked it, compile it using the Turbo-Basic Compiler.

To control the spheroid ship you must use a joystick in port two to move in 8 directions and the fire-button to shoot the mega-brick and the oncoming drone cubes.

by Darren Knowles

```
EX 1 REM ##################################
AA 2 REM #          BLOCK BUSTER          #
OH 3 REM #        by Darren Knowles       #
QC 4 REM #      Requires Turbo Basic      #
HC 5 REM # ------------------------------ #
CD 6 REM # NEW ATARI USER - JUNE '92      #
FD 7 REM ##################################
NN 8 REM
CS 10 REM DATA FOR VBI/DLI'S+POSITIONER
EV 20 DATA 160,91,162,6,169,7,32,92,228,1
   04,96,173,78,6,141,79,6,76,98,228,120
PR 30 DATA 72,152,72,138,72,166,208,224,2
   0,208,4,162,0,134,208,169,6,141,24,208
CE 40 DATA 173,79,6,141,10,212,141,26,208
   ,238,79,6,238,79,6,230,208,104,170,104
MZ 50 DATA 168,104,64,104,162,5,104,149,2
   20,202,16,250,160,9,169,0,145,222,136,
   192
BW 60 DATA 0,208,249,182,220,240,11,160,9
   ,177,224,145,220,136,192,0,208,247,96
FH 70 REM  POKE THE M/CODE INTO PAGE 6
RI 80 FOR A=1616 TO 1715
IT 90   READ DATA:POKE A,DATA
CP 100 NEXT A
CG 110 REM        SET UP GRAPHICS MODE
IP 120 REM         AND INITIAL COLOURS
WZ 130 GRAPHICS 23
LW 140 POKE 708,10
XU 150 POKE 709,8:POKE 710,32
LP 160 POKE 559,0
OM 170 POKE 16,64:POKE 53774,64
JD 180 REM  FIND START OF DISPLAY LIST
GD 190 DL=PEEK(560)+256*PEEK(561)
ZR 200 REM  MODIFY DISPLAY LIST
OS 210 POKE DL+3,PEEK(DL+3)-11
AU 220 FOR A=6 TO 99
MS 230   POKE DL+A,141
CY 240 NEXT A
WT 250 REM  DRAW THE GRID
UG 260 FOR A=10 TO 80 STEP 10
PZ 270   COLOR 1:PLOT 0,A
TO 280   DRAWTO 159,A
NM 290   PLOT 0,A+1:DRAWTO 159,A+1
VE 300   COLOR 2
OS 310   PLOT 0,A+2:DRAWTO 159,A+2
NF 320   COLOR 3:PLOT 0,A+3:DRAWTO 159,A+
   3
CX 330 NEXT A
YN 340 FOR A=3 TO 159 STEP 10
QG 350   COLOR 1:PLOT A,2
LT 360   DRAWTO A,89
KB 370   PLOT A+1,2:DRAWTO A+1,89
TR 380   COLOR 2:PLOT A+2,2:DRAWTO A+2,89
WL 390   COLOR 3:PLOT A+3,2:DRAWTO A+3,89
CS 400 NEXT A
CP 410 REM  SWITCH ON THE VBI
CK 420 X=USR(1616)
BJ 430 REM  POINT THE COMPUTER TO DLI
SE 440 POKE 512,100:POKE 513,6:POKE 54286
   ,192
AG 450 REM  MAKE THE COMPUTER THINK THAT
NP 460 REM  IT IS IN GRAPHICS MODE ZERO
JY 470 POKE 87,0
FV 480 REM  SWITCH OFF CURSOR
KA 490 POKE 752,1
RY 500 REM  DEFINE THE PLAYER/MISSILES
TS 510 DIM ALIEN1$(11),ALIEN2$(11),ALIEN3
   $(11),SHIP$(11),MISS$(11),DISS$(110)
SC 520 ALIEN1$="♥)%=: %)"
ZK 530 ALIEN2$="♥\1\a 7)"
GS 540 DISS$(1)="♥))))))))))"
XH 550 DISS$(12)="♥))0)))s)))"
AW 560 DISS$(23)="♥))g0)))S))"
AH 570 DISS$(34)="♥))g0)y)s))"
JG 580 DISS$(45)="♥))gM)9)s→)"
GN 590 DISS$(56)="♥)KgM)9_s→)"
TO 600 DISS$(67)="♥?KgMx9_s→s"
DE 610 DISS$(78)="♥'▄▄/)I:: ╋"
ZE 620 DISS$(89)="♥$▟$▀▼ (H−♣"
TS 630 DISS$(100)=DISS$(1)
TT 640 SHIP$="♥♥┴<◀))◀ <┴♥"
QA 650 ALIEN3$=DISS$(1,11)
ZX 660 MISS$="♥♥♥♥♥))♥♥♥♥"
UJ 670 REM  SET UP THE PLAYER/MISSILES
```

```
KL 680 PM=PEEK(106)-24
NR 690 POKE 54279,PM
ZC 700 PMBASE=PM*256
FT 710 FOR CLEARPM=0 TO 1023:POKE PMBASE+
   CLEARPM,0:NEXT CLEARPM
SV 720 POKE 559,46
IM 730 POKE 623,1
TH 740 POKE 53256,0:POKE 53257,1:POKE 532
   58,1:POKE 53259,3
SL 750 REM  COLOURS OF PLAYERS 
DJ 760 PCOL0=14:PCOL1=32:PCOL2=32:PCOL3=1
   4
MV 770 POKE 704,PCOL0:POKE 705,PCOL1:POKE
    706,PCOL2:POKE 707,PCOL3
VY 780 POKE 53277,3
DN 790 REM  PM'S MEMORY LOCATIONS 
QC 800 PLAYER1=PMBASE+512
YI 810 PLAYER2=PLAYER1+128
ZO 820 PLAYER3=PLAYER2+128
AU 830 PLAYER4=PLAYER3+128
FM 840 MISSILE=PMBASE+384
GY 850 REM  VARIABLES 
OZ 860 X=100:Y=30:LAST=1536:A1LAST=1536:A
   2LAST=1536:AY=56:AX=126:AX1=126:AY1=56
   :MX1=126:MY1=0
OR 870 BX=126:BY=56:BXX=-1:BYY=1
VH 880 MLAST=1536:BLAST=1536
UE 890 YSET=1:SCORE=0:ENERGY=555
CE 900 FIRED=0:HITS=9:WAVE=1:SPD=0:SETHIT
   S=9:COLOUR=255:CYCLE=0:TME=0
UP 910 STIME=0:GOTIME=0
VY 920 REM  MAIN LOOP 
PC 930 ------------------------------
RQ 940 EXEC TITLE
PG 950 ------------------------------
GD 960 EXEC SPHERE
KJ 970 EXEC ALIEN1
LA 980 EXEC ALIEN2
LR 990 EXEC ALIEN3
TQ 1000 IF FIRED=1 THEN EXEC FIRE
XM 1010 EXEC COLLISION
GD 1020 EXEC TIME
XZ 1030 IF GOTIME=1 THEN EXEC TIME2
XO 1040 ------------------------------
XY 1050 IF CYCLE=1 THEN EXEC COLROT
XU 1060 ------------------------------
TR 1070 GOTO 960
YA 1080 ------------------------------
XA 1090 PROC SPHERE
JC 1100   REM  PLAYER ONES' MOVEMENT 
AW 1110   STICK=PEEK(632)
BK 1120   IF FIRED=1 THEN 1140
WX 1130   IF STRIG(0)=0 AND DER<>15 THEN
   FIRED=1:FDER=DER
NV 1140   IF STICK=7 AND X<198 THEN X=X+2
   .5+SPD
QA 1150   IF STICK=11 AND X>48 THEN X=X-2
   .5-SPD
SF 1160   IF STICK=13 AND Y<98 THEN Y=Y+2
   .5+SPD
LQ 1170   IF STICK=14 AND Y>20 THEN Y=Y-2
   .5-SPD
GD 1180   IF STICK=5 AND Y<98 AND X<198 T
   HEN X=X+2.5+SPD:Y=Y+2.5+SPD
DE 1190   IF STICK=9 AND Y<98 AND X>48 TH
   EN X=X-2.5-SPD:Y=Y+2.5+SPD
ZN 1200   IF STICK=6 AND Y>20 AND X<198 T
   HEN Y=Y-2.5-SPD:X=X+2.5+SPD
HB 1210   IF STICK=10 AND Y>20 AND X>48 T
   HEN Y=Y-2.5-SPD:X=X-2.5-SPD
JQ 1220   DER=STICK
WD 1230   POKE 53248,X
CS 1240   D=USR(1680,ADR(SHIP$),LAST,PLAY
   ER1+Y):LAST=PLAYER1+Y
YV 1250 ENDPROC
XY 1260 ------------------------------
ZJ 1270 PROC ALIEN1
VT 1280   REM  ALIEN ONES' MOVEMENT 
CR 1290   IF AX<X THEN AX=AX+1+SPD
GW 1300   IF AX>X THEN AX=AX-1-SPD
EQ 1310   IF AY<Y THEN AY=AY+1+SPD
JX 1320   IF AY>Y THEN AY=AY-1-SPD
VT 1330   POKE 53249,AX
GA 1340   D=USR(1680,ADR(ALIEN1$),A1LAST,
   PLAYER2+AY):A1LAST=PLAYER2+AY
YX 1350 ENDPROC
YA 1360 ------------------------------
AB 1370 PROC ALIEN2
OM 1380   REM  ALIEN TWOS' MOVEMENT 
LQ 1390   IF AX1<X THEN AX1=AX1+0.5+SPD
QN 1400   IF AX1>X THEN AX1=AX1-0.5-SPD
TP 1410   IF AY1>Y THEN AY1=AY1-0.5-SPD
NW 1420   IF AY1<Y THEN AY1=AY1+0.5+SPD
ED 1430   POKE 53250,AX1
AS 1440   D=USR(1680,ADR(ALIEN2$),A2LAST,
   PLAYER3+AY1):A2LAST=PLAYER3+AY1
YZ 1450 ENDPROC
YC 1460 ------------------------------
AT 1470 PROC ALIEN3
ZM 1480   REM  ALIEN 3'S MOVEMENT 
NK 1490   BX=BX+BXX:IF BX>169 THEN BXX=-B
   XX
FX 1500   IF BX<54 THEN BXX=-BXX
NM 1510   BY=BY+BYY:IF BY>97 THEN BYY=-BY
   Y
HG 1520   IF BY<21 THEN BYY=-BYY
XY 1530   POKE 53251,BX:POKE 707,BX
TT 1540   D=USR(1680,ADR(ALIEN3$),BLAST,P
   LAYER4+BY):BLAST=PLAYER4+BY
ZB 1550 ENDPROC
YE 1560 ------------------------------
HR 1570 PROC FIRE
CB 1580   REM  FIRE ROUTINE 
JA 1590   IF YSET=0 THEN GOTO 1620
ZO 1600   MYPOS=Y:MX=X+3:YSET=0
SB 1610   POKE 77,0
TY 1620   IF FDER=7 THEN MX=MX+4+SPD
SJ 1630   IF FDER=11 THEN MX=MX-4-SPD
LG 1640   IF FDER=13 THEN MYPOS=MYPOS+4+S
   PD
RO 1650   IF FDER=14 THEN MYPOS=MYPOS-4-S
   PD
BZ 1660   IF FDER=6 THEN MYPOS=MYPOS-4-SP
   D:MX=MX+4+SPD
BL 1670   IF FDER=10 THEN MYPOS=MYPOS-4-S
   PD:MX=MX-4-SPD
WF 1680   IF FDER=5 THEN MYPOS=MYPOS+4+SP
   D:MX=MX+4+SPD
GA 1690   IF FDER=9 THEN MYPOS=MYPOS+4+SP
   D:MX=MX-4-SPD
MV 1700   IF MX<20 OR MX>220 THEN 1720
EF 1710   IF MYPOS>-5 AND MYPOS<122 THEN
   GOTO 1740
TP 1720   YSET=1:FIRED=0
RU 1730   D=USR(1680,ADR(MISS$),MLAST,0):
   POKE 53252,0:GOTO 1750
TZ 1740   POKE 53252,MX:D=USR(1680,ADR(MI
   SS$),MLAST,MISSILE+MYPOS):MLAST=MISSIL
   E+MYPOS
ZF 1750 ENDPROC
YI 1760 ------------------------------
CS 1770 PROC COLLISION
ZS 1780   REM  CHECK FOR ANY COLLISIONS 
DE 1790   IF PEEK(53260)<>0 THEN EXEC SPH
   EREHIT
OG 1800   IF PEEK(53256)=2 THEN EXEC A1HI
   T
RN 1810   IF PEEK(53256)=4 THEN EXEC A2HI
   T
WO 1820   IF PEEK(53256)=8 THEN EXEC A3HI
   T
VR 1830   IF PEEK(53256)<>0 THEN POKE 532
   78,0
ZE 1840 ENDPROC
YH 1850 ------------------------------
AH 1860 PROC SPHEREHIT
FF 1870   REM  SPHEROID IS HIT ROUTINE 
XK 1880   FOR A=1 TO 2:SOUND 0,200,10,15:
   POKE 704,A:SOUND 0,20,10,15:NEXT A:POK
   E 704,PCOL0:SOUND
SV 1890   POKE 53278,0:ENERGY=ENERGY-5
VN 1900   EXEC ENERGY
YX 1910 ENDPROC
YA 1920 ------------------------------
NY 1930 PROC A1HIT
VV 1940   REM  ALIEN 1 IS HIT 
NJ 1950   FOR A=40 TO 60:SOUND 0,A,2,15:P
```

continued ☛

BLOCKBUSTER

```
   OKE 705,A:NEXT A:POKE 705,PCOL1:SOUND
VB 1960    POKE 53278,0:AX=BX+13:AY=BY+3
BO 1970    MX=0:POKE 53252,0:YSET=0:D=USR(
   1680,ADR(MISS$),MLAST,0):MLAST=1536
DZ 1980    SCORE=SCORE+5
AP 1990    EXEC HITS
YD 2000 ENDPROC
XG 2010 ------------------------------
NQ 2020 PROC A2HIT
VU 2030    REM  ALIEN 2 IS HIT
TK 2040    FOR A=40 TO 60:SOUND 0,A,2,15:P
   OKE 706,A:NEXT A:POKE 706,PCOL2:SOUND
PP 2050    POKE 53278,0:AX1=BX+13:AY1=BY+3
AU 2060    MX=0:POKE 53252,0:YSET=0:D=USR(
   1680,ADR(MISS$),MLAST,0):MLAST=1536
DF 2070    SCORE=SCORE+5
ZV 2080    EXEC HITS
ZE 2090 ENDPROC
XF 2100 ------------------------------
OB 2110 PROC A3HIT
JO 2120    REM  THE BLOCK IS HIT
AA 2130    FOR A=50 TO 60:SOUND 0,A,2,15:P
   OKE 707,A:NEXT A:POKE 53278,0:POKE 707
   ,PCOL3:SOUND
AQ 2140    MX=0:POKE 53252,0:YSET=0:D=USR(
   1680,ADR(MISS$),MLAST,0):MLAST=1536
BZ 2150    SCORE=SCORE+10:HITS=HITS-1:EXEC
    HITS
YX 2160 ENDPROC
YA 2170 ------------------------------
QX 2180 PROC HITS
IS 2190    REM  THE HIT ROUTINE
ZS 2200    POSITION 8,0:? HITS
TR 2210    SHP=9-HITS
KS 2220    IF HITS<1 THEN D=USR(1680,ADR(A
   LIEN3$),BLAST,0):EXEC WAVE
KW 2230    ALIEN3$=DISS$(SHP*11+1)
YT 2240 ENDPROC
XW 2250 ------------------------------
BM 2260 PROC ENERGY
GT 2270    REM  THE ENERGY ROUTINE
DP 2280    POSITION 35,0:? ENERGY;"●"
CJ 2290    IF ENERGY<5 THEN EXEC DEAD
YJ 2300 ENDPROC
XM 2310 ------------------------------
VG 2320 PROC DEAD
HH 2330    REM  THE SPHEREOID IS DEAD
SI 2340    FOR A=1 TO 255
AH 2350      SOUND 0,A,12,15:POKE 704,A
YE 2360    NEXT A
MB 2370    FOR A=255 TO 1 STEP -1
AO 2380      SOUND 0,A,12,15:POKE 704,A
YN 2390    NEXT A
CV 2400    SOUND 0,0,0,0
HQ 2410    POKE 710,1:POKE 709,1
DP 2420    SOUND 1,0,0,0
MZ 2430    POSITION 0,0:? "              TH
   E GAME IS OVER          "
CN 2440    EXEC FADE
PV 2450    POSITION 0,0:? "   THE SPHEROID
   S HAVE LOST THE BATTLE   "
CT 2460    EXEC FADE
VQ 2470    POSITION 0,0:? "   THE UNIVERSE
    WILL BE FOREVER RULED   "
CZ 2480    EXEC FADE
OG 2490    POSITION 0,0:? "                B
   Y THE CUBOIDS              "
CD 2500    EXEC FADE
QG 2510    POSITION 0,0:? "                Y
   OUR SCORE IS            "
CJ 2520    EXEC FADE
FN 2530    POSITION 0,0:? "
                              "
ZJ 2540    POSITION 19,0:? SCORE
CS 2550    EXEC FADE
EC 2560    POSITION 0,0:? "
   PRESS START                "
CY 2570    EXEC FADE
XB 2580    GOTO 2510
ZO 2590 ENDPROC
XP 2600 ------------------------------
FP 2610 PROC TITLE
NY 2620    REM  TITLE SCREEN
BJ 2630    POSITION 0,0:? ". BLOCKBUSTER .
   BY D.KNOWLES. PRESS START ."
HJ 2640    SOUND 0,171,2,15
MB 2650    FOR A=255 TO 1 STEP -1
EG 2660      POKE 1614,A:PAUSE 0.2
OL 2670      IF PEEK(53279)<>7 THEN 2700
YQ 2680    NEXT A
AC 2690    GOTO 2650
OH 2700    SOUND 0,0,0,0:POKE 1614,0
TO 2710    POSITION 0,0
IP 2720    ? "    HITS●9●... BLOCKBUSTER ..
   .POWER●555● "
ZA 2730 ENDPROC
YD 2740 ------------------------------
ND 2750 PROC WAVE
FU 2760    REM  NEW WAVE ROUTINE
KA 2770    SOUND
FG 2780    WAVE=WAVE+1:SPD=SPD+0.3:SCORE=S
   CORE+50
IL 2790    POSITION 0,0:? "
                          "
RV 2800    POSITION 0,0:? "
     WAVE ";WAVE
RX 2810    FOR A=0 TO 14:PAUSE 2
UG 2820      POKE 710,A
TW 2830    NEXT A:PAUSE 10
XT 2840    FOR A=14 TO 0 STEP -1:PAUSE 2
PX 2850      POKE 710,A:NEXT A:PAUSE 10
GF 2860    POSITION 0,0:POKE 710,32
JC 2870    ? "   HITS●9●... BLOCKBUSTER ..
   .POWER●";ENERGY+150;"●"
DF 2880    HITS=SETHITS
LJ 2890    ENERGY=ENERGY+150
XV 2900    IF WAVE>4 THEN CYCLE=1
OP 2910    ALIEN3$=DISS$(1,11)
ZB 2920 ENDPROC
YE 2930 ------------------------------
GL 2940 PROC COLROT
SQ 2950    REM  ROTATE VENITIAN BLINDS
SJ 2960    COLOUR=COLOUR-1:IF COLOUR<0 THE
   N COLOUR=255
EL 2970    POKE 1614,COLOUR
ZT 2980 ENDPROC
YW 2990 ------------------------------
VW 3000 PROC FADE
GS 3010    REM  FADE WRITING ROUTINE
ZB 3020    FOR A=0 TO 14
RU 3030      IF PEEK(53279)<>7 THEN 3090
BS 3040      POKE 709,A:PAUSE 2:NEXT A:PAU
   SE 10
AH 3050    FOR A=14 TO 0 STEP -1
YU 3060      IF PEEK(53279)<>7 THEN GOTO 3
   090
OV 3070      POKE 709,A:PAUSE 2:NEXT A
VB 3080    GOTO 3110
UN 3090    POP
IT 3100    POKE 710,32:POKE 709,8:EXEC RES
   TART:REM  START AGAIN
YJ 3110 ENDPROC
XM 3120 ------------------------------
FR 3130 PROC RESTART
YG 3140    REM  RESTART
FM 3150    POSITION 0,0:? "
                              "
PD 3160    POKE 709,8:POKE 710,32
CR 3170    ALIEN3$=DISS$
UI 3180    POKE 559,0:PAUSE 3:POP :GOTO 68
   0
ZH 3190 ENDPROC
XI 3200 ------------------------------
KG 3210 PROC TIME
DQ 3220    REM  TIME/ENERGY ROUTINE
RV 3230    TME=TME+1+SPD
MS 3240    IF TME>120 THEN GOTIME=1
YX 3250 ENDPROC
YA 3260 ------------------------------
NU 3270 PROC TIME2
JC 3280    REM  MAKE SOUND FOR TIME
XU 3290    POKE 53763,174:POKE 53762,180
EE 3300    STIME=STIME+1:IF STIME=3 THEN P
   OKE 53763,0:GOTIME=0:STIME=0
XD 3310    ENERGY=ENERGY-3:TME=0
VJ 3320    EXEC ENERGY
YT 3330 ENDPROC
```

NUMERIC FUNCTIONS

Almost all programming involves maths at some stage but how many of you know how to use all those obscure maths functions? Ann O'Driscoll explains it all

If you look up the list of Basic commands in your Atari manual, you'll see that RND produces a random number between 0 and 1, that ABS returns the absolute (unsigned) value of a number, that SQR gives the square root of a number, and so on. However, with the possible exception of RND, you don't often see examples of the "mathematical" commands in Basic programs. This article attempts to give some insight into the ways in which they might be used.

RANDOM NUMBERS AND INTEGERS

Taking RND first, this is a command which gives you a random decimal number between 0 and 1. You use it in the form RND(n) where "n" is a dummy variable - i.e. any number or letter. Programs usually have "n" set at 0 [e.g. PRINT RND(0) or X=RND(0)]. RND(0) might sometimes return a value of 0 but it will never get to 1. However, random numbers outside the 0 to 1 range can be produced easily - For instance, RND(0)*6 will give a number in the range 0 to 5.999.

We use the function INT to get whole numbers, as in INT(RND(0)*9), which gives a number between 0 and 8. Some other examples are given in Table 1. INT is short for integer part or whole number part and it always rounds DOWN to the next number, so INT(3.9)=3 and INT(-3.9)=-4.

LISTING 1 uses INT and RND to produce a random pattern of coloured blocks on a Graphics 3 screen: LINES 120 and 130 generate the column and row co-ordinates and LINE 140 picks a random colour register. The block is plotted in LINE 150 and the process is repeated (i.e. goes back to LINE 120) until you press Q (PEEK(764)=47).

```
NW 100 REM  LISTING 1: RANDOM BLOCKS
QS 102 REM
GI 110 GRAPHICS 3:POKE 764,255:? "↓▸ PRES
   S Q TO QUIT"
HJ 120 X=INT(RND(0)*40):REM 0 TO 39
DW 130 Y=INT(RND(0)*20):REM 0 TO 19
AU 140 Z=INT(RND(0)*4)+1:REM 1 TO 4
NH 150 COLOR Z:PLOT X,Y:IF PEEK(764)<>47
   THEN 120
JT 160 POKE 764,255:END
```

```
GR 200 REM  LISTING 2: COMPOUND INTEREST
QT 202 REM
YM 210 GRAPHICS 0:? :? "COMPOUND INTEREST
    CALCULATIONS":? :? "THE INTEREST RATE
    IS 5 PER CENT":POKE 764,255
ZD 220 TRAP 210:POSITION 2,6:? "INPUT THE
    INITIAL AMOUNT: ";:INPUT P:IF P<0 THE
   N 210
JH 230 POSITION 2,7:? "INPUT NUMBER OF YE
   ARS: ";:INPUT T:IF T<0 THEN 210
TY 250 POSITION 2,10:? "IF YOU LEAVE ";P;
   " IN THE BANK":? "FOR ";T;" YEARS";:IF
    T=1 THEN ? "← ";
KS 260 ? :? "YOU WILL GET ";P*(1.05)^T;"
   BACK":?
YF 270 ? "ROUNDED: ";INT((P*(1.05)^T)+0.5
   ):?
JY 280 POKE 764,255:END
```

POWERS AND ROOTS

For convenience, we often write 10x10x10x10 as 10^4 (10 to the power of 4), 2x2x2x2x2 as 2^5 (2 to the power of 5), and so on. The Atari uses the "caret" symbol on the asterisk key to signify "raised to the power of". In general, terms such as 3^n, 8^n, etc. are known as "EXPONENTIAL FUNCTIONS" and we call the power or index to which a number is raised its EXPONENT.

The computer always prints very big and very small numbers in their exponential form to the base 10 (i.e. 10 to the power of something):- For instance, 350000000000 would be written as 3.5E + 11: The "E" means its in exponential form and the 11 is the power to which 10 is raised. (3.5 x 10^11 = 350000000000). This is sometimes called scientific notation.

We reverse the power process to get the root of a number. For instance, 6x6=36 so 6 is the square root of 36, 4x4x4=64 so 4 is the cube root of 64, 3x3x3x3=81 so 3 is the fourth root of 81, and so on. The computer uses the SQR function to get the square root of a number. This takes the form SQR(n) where n

is your number. Higher roots - cubes, etc. don't have their own command but they can be worked out easily enough - if you've experimented with fractions in the power function, you may already have found that a number to the power of 1/2 gives the square root or that something to the power of 1/3 is the cube root. In general, X to the power of 1/n gives the nth root of X. You can also use logarithms to work out roots, as outlined below.

Powers and roots crop up a lot in maths equations - the area of a circle is related to the radius squared and the acceleration of an object is measured in metres per second squared, to give just two examples. LISTING 2 shows how the power function comes into play in working out compound interest sums: LINES 220 and 230 ask you to input the initial amount to be invested (called the principal, P) and the number of years it is to be invested for (time, T). The final principal plus interest, displayed by LINE 260, is worked out using the formula: total amount = principal*(1+r)^time where "r" is the rate of interest (fixed at 5% in this case). LINE 270 shows the amount in rounded form - it was mentioned earlier that the INT function always rounds downwards; if we add 0.5 to our number before applying the INT function we can round to the nearest whole number instead.

SIGNS AND ABSOLUTE VALUES

SGN is a function which tells you whether a number (say n) is positive (SGN(n)=1), negative (SGN(n)=-1) or zero (SGN(n)=0). ABS is a function which converts a number into its absolute value, which simply means that it removes the minus sign if there is one. LISTING 3 shows how these two commands can work together in a game: LINE 310 draws an orange box on a Graphics 7 screen. This is our space station. The green dot is the alien missile which starts of at random co-ordinates X,Y defined in LINE 320 - the IF THEN statement makes sure the missile is not in or too near the base before plotting. SGN and ABS are used to correct the course of the missile and make it home in on the base: We look at the missile position relative to the centre of the screen/space station (row 80, column 40) and then adjust its co-ordinates depending on whether it's to the right, left, above or below the target. It is probably easier to see what's happening here if you assume different initial starting co-ordinates for the missile and follow them through step by step; Table 2 below does this, using 4 scenarios (A, B, C and D). Finally, LINE 360 erases the old missile by printing a space in its place, the co-ordinates are adjusted and the missile is reprinted unless it is too near the base. The FOR NEXT loop tells the computer to go through the sequence 6 times.

LOGARITHMS AND EXPONENTIALS

A common logarithm is the power to which 10 must be raised to produce a given answer. The Atari has a function called CLOG to find this. For example, CLOG(100)=2 because 10x10=100 CLOG(1000)=3 because 10x10x10=1000 CLOG(10)=1 because 10x1=10 and CLOG(1)=0 because any number raised to the power of zero equals one.

You may notice from the above figures that a unit increase in the index or log corresponds to a tenfold increase in the number. For this reason, statistical data - especially things which change over time, such as population growth - are often plotted on a log scale (i.e. vertical axis shows the log of the values) instead of an absolute scale (i.e. when vertical axis shows the actual values) as this allows the proportionate changes in the variables to be seen:- If the rate of change is constant, you'll get a straight line when you join up the points,

```
QZ 300 REM  LISTING 3: LOCK ON TARGET
QU 302 REM
AO 310 GRAPHICS 7:COLOR 1:PLOT 78,38:DRAW
   TO 82,38:DRAWTO 82,42:DRAWTO 78,42:DRA
   WTO 78,38:COLOR 2
EO 315 ? CHR$(125);"↓HOME IN ON TARGET DE
   MO ";:FOR COUNT=1 TO 6
NC 320 X=INT(RND(0)*160):Y=INT(RND(0)*80)
   :IF X>77 AND X<83 AND Y>37 AND Y<43 TH
   EN 420
OA 330 PLOT X,Y:X1=80-X:Y1=40-Y
RE 340 IF ABS(X1)>ABS(Y1) THEN X2=SGN(X1)
   :Y2=SGN(Y1)*ABS(Y1/X1):GOTO 360
GT 350 Y2=SGN(Y1):X2=SGN(X1)*ABS(X1/Y1)
BY 360 POSITION X,Y:? #6;" ":X=X+X2:Y=Y+Y
   2:IF X>77 AND X<83 AND Y>37 AND Y<43 T
   HEN 380
NX 370 GOTO 330
KS 380 FOR D=1 TO 50:NEXT D:NEXT COUNT:EN
   D
```

```
EF 400 REM  LISTING 4: ROOTS FROM LOGS
QV 402 REM
DW 410 GRAPHICS 0:? :? "USING COMMON LOGS
    TO GET ROOTS"
IS 420 TRAP 410:POSITION 2,4:? "INPUT A N
   UMBER: ";:INPUT N
XB 425 POSITION 2,6:? "INPUT THE ROOT YOU
    WANT. USE 3 FOR":? "CUBES, 4 FOR FOUR
   TH ROOTS, ETC. ";:INPUT R
VG 430 X1=CLOG(ABS(N)):X2=X1/R:X3=10^X2
RL 440 ? :? "COMMON LOG OF NUMBER = ";X1
HN 450 ? "ANSWER = ";X3:END
```

if the rate of change is increasing, your line will curve upwards (called "exponential growth"), and so on.

You multiply or divide powers of the same number by adding or subtracting the exponents (e.g. "b" cubed by "b" squared = bxbxb x bxb = b to the power of 5). Also, you get the nth root of a number by dividing the exponent by n (e.g. cube root of "d" to the power of 12 is "d" to the power of 4). LISTING 4 utilises this last property to produce roots from numbers you input, with the help of the CLOG function. LINES 420 and 425 ask you to input a number (N) and the root you want (R). LINE 430 gets the base 10 log (X1), divides this by the required root and then converts the answer back into an ordinary number, X3 (this is called the antilog). You will see that LINE 430 uses the ABS function to strip away the minus from the original number if there is one: As two negative numbers multiplied together gives a positive number, you can't get the square root of a minus number. We use ABS to prevent an error message occurring in the program if N is less than 0. Incidentally, in maths, a number to the power of -n is equivalent to the nth root (i.e. to the power of 1/n) so there is no need to convert the inputted root value in the listing.

Common logarithms are sometimes called "BASE 10" logs because they deal with 10 to the power of n. You can have logs for other bases or exponential functions too - For instance, 8=2x2x2 (2 to the power of 3) so 3 is the base 2 log of 8. e^n is a special exponential function in maths and logs to the BASE e are called "NATURAL LOGARITHMS". "e" (exponential e) is an infinite number which starts off at 2.718 and is defined as being equal to EXP(1). The Atari has two functions for exponential e: LOG(n) returns the BASE e logarithm of a number, n (i.e. "e to the power of what gives the answer n?") and EXP(n) gives e to the power of n.

One place where you may have come across the log(n) function already is in relation to shell sorting routines. This sorting technique works by continually splitting the original group down into smaller blocks and comparing the items in each. For

instance, if you have 100 unsorted items and use blocks of 20, then your shell sort compares - and swaps if necessary - the first with the 21st, the 2nd with the 22nd, and so on. When there are no more exchanges to be made, the block size is reduced and the process is repeated. While there are no hard and fast rules about initial block size, some numbers have been found to work better than others and one "good" starting value is related to the natural logarithm of the total number of items to be sorted. LISTING 5, which puts a string of letters into alphabetical order, shows this in operation. LINE 520 defines the initial block size (called "GAP") in terms of LOG(26), as there are 26 items to be sorted. The FOR NEXT loop in LINES 540-570 does the comparing and swapping, using the string B$ to temporarily hold the item being moved down to a lower position. The swap flag is set (SW=1) if an exchange takes place and in this case the loop is repeated, as further changes may result from the revised relative positions of the letters. LINE 532 successively halves the block size for the second and subsequent rounds of the sort; these come into play when the exchanges for the previous round have all taken place (LINE 580). The program ends when gap size falls below 2 and the sorted string is displayed.

PROBABILITIES

The maths functions - particularly powers - are used a lot in working out series of probabilities - The probability of an event happening will always be a number between 0 (impossible) and 1 (certain), with the chance of any particular outcome depending on the number of possible events. For instance, when you toss a die there are 6 possible outcomes so the probability of getting any given number is 1/6; if you throw a coin there are only 2 possible outcomes so the probability of getting heads is 1/2. So how do we work out the chances of getting 2 heads in a row? Well, we know that the probability of heads is 1/2. If this happens, there's a 1 in 2 chance of getting heads on the second toss too, so the probability of getting two heads is 1/2 x 1/2 or 1/2 to the power of 2; five heads in a row is 1/2 to the power of 5, or n consecutive heads is 1/2 to the power of n.

If you toss two dice, you would expect that the chance of getting a total of 12 is more remote than say, a 7, as there is only 1 way of getting a 12 (6+6) while 7 can be reached in lots of ways (3+4, 4+3, 6+1, 1+6, 5+2, 2+5). LISTING 6 shows results of tossing 2 dice 36 times: The figures along the end of the screen show the possible outcomes and the number of Xs shows how many times each sum was generated. While it is theoretically possible that 36 throws will yield 36 double 6s (as each toss is independent of the others), on average we would expect only one total of 12 per 36 goes (1/6 to the power of 2). In fact, if you run the program a few times, you should find that the middling totals consistently appear more frequently than the extremes.

For the above reason, adventure games, simulations and suchlike often have events dependant on pairs of random numbers rather than just one on the basis that something in between is more likely than complete success/failure. For instance, you might have a game in which the outcome of the hero's battle with his opponent is determined by "tossing" a pair of dice, using a routine like the one at LINE 630 of LISTING 6. If the odds are stacked against the hero (maybe because he has no weapon or the opponent is a dragon), you could use something like IF Z=2 OR 12 THEN ....(hero wins)

This would be most unlikely, occurring on average only once every 18 turns (1/36 + 1/36 = 1/18). You can't get the same effects with single random numbers, as each has an equal chance of being generated by the RND(0) command.

```
XC 500 REM LISTING 5: SORT WITH LOG(N)
QW 502 REM
PC 510 GRAPHICS 0:? :? "SORTING DEMO USIN
   G NATURAL LOGS"
NV 515 C=26:DIM A$(C),B$(1):A$="QWERTYUIO
   PASDFGHJKLZXCVBNM"
EQ 520 GAP=INT((2^INT(LOG(C)/LOG(2))-1)+0
   .5)
ZW 525 ? :? "INITIAL GAP: ";GAP:? "UNSORT
   ED STRING: ":? A$:GOTO 535
WI 530 IF GAP<=1 THEN 590
LO 532 GAP=INT(GAP/2)
GG 535 SW=0
DY 540 FOR N=1 TO C-GAP
UW 550 IF A$(N)<A$(N+GAP) THEN 570
SJ 560 SW=1:B$=A$(N,N):A$(N,N)=A$(N+GAP,N
   +GAP):A$(N+GAP,N+GAP)=B$
AA 570 NEXT N:IF SW>0 THEN 535
OV 580 GOTO 530
WD 590 ? :? "SORTED STRING: ":? A$:END
```

```
IK 600 REM LISTING 6: PROBABILITIES
QX 602 REM
MM 610 GRAPHICS 0:? "↓RESULTS OF TOSSING
   2 DICE 36 TIMES":POSITION 3,19:? "2  3
    4  5  6  7  8  9  10 11 12"
VG 620 DIM S(12):FOR N=1 TO 12:S(N)=0:NEX
   T N:POKE 752,1:FOR N=1 TO 36
HE 630 X=INT(RND(0)*6)+1:Y=INT(RND(0)*6)+
   1:Z=X+Y
YK 640 S(Z)=S(Z)+1:POSITION (Z-1)*2+(Z-1)
   ,18-S(Z):? "X"
GD 650 NEXT N:POSITION 2,21:POKE 752,0:EN
   D
```

CONCLUSION

The aim of these notes was to demystify the more obscure mathematical functions and also to give enough information on maths in general to help you put the numerical commands in some sort of context when you come across them in program listings. I hope I have at least gone some of the way towards doing this. Of course, if you rush off now to use some maths commands in your own programs, so much the better!

TABLE 1: RANDOM NUMBERS WITH INT AND RND

Number range	How to get it
0 - 0.999	RND(0)
0 - N *0.999	RND(0)*N
0 - 19	INT(RND(0)*20)
1 - 20	INT(RND(0)*20)+1
+5	INT(RND(0)*11)-5

TABLE 2: HOW SGN AND ABS VALUES IN LISTING 3 ARE USED TO UPDATE X AND Y CO-ORDINATES

	SCENARIOS			
VALUE	[A]	[B]	[C]	[D]
START X	30	150	60	90
START Y	20	70	10	60
X1	50	-70	20	-10
Y1	20	-30	30	-20
ABS X1>ABS Y1	YES	YES	NO	NO
X2	+ 1	- 1		
Y2	+ 0.4	- 0.4		
Y2			+ 1	- 1
X2			+ 0.6	- 0.5
NEW X	31	149	60.6	89.5
NEW Y	20.4	69.6	11	59
[Repeat sequence]				

80 COLUMN TEXT

A software solution presented by Matthew Bennett

With no ability to display 80 column text, except for adding a hardware interface, perhaps you thought that 80 columns is something that you could easily do without? What about large displays that won't fit on a Graphics 0 screen though? Scrolling and page flipping hardly gives the same effect as the display our ST owning pals take for granted so how about trying a software solution?

AN 80 COLUMN ROUTINE

This simple to use utility which plots text on a graphics screen will give you the graphics resolution of mode 8 with the Basic Plot and DRAWTO commands, as well as that elusive 80 column text. There is no need to know exactly how the routine works as, once it's set up, all the hard work is done for you, and even the most novice programmer shouldn't have any trouble with it. What it does is to copy text from a string onto a Graphics 8 screen at specified X and Y coordinates.

SETTING UP

Listing 1 is the set up program. It loads into memory a machine code routine at location 30204 and a new character set at location 30720. The machine code is position dependent which means it must be kept there and nowhere else in order to execute. The character set however may be put anywhere (as long as the start address is divisible by 256) and the address 30357 altered to contain the start address divided by 256. The default value is 120 (120*256=30720).

Once this routine is run there are just a couple of more things to do. Firstly call up the Graphics Mode 8. Either Graphics 8 for a text window or Graphics 8+16 for none, but remember if you choose this option when you exit from the program Basic will return you to the Graphics 0 screen to display the Ready prompt. An alternative is to use a custom display list, beyond the scope of this article but see issue 43 if you want to know about them.

The next and final step is to POKE addresses 1788 and 1789 with the start of screen memory. Normally the following will do:

```
POKE 1788, PEEK(88): POKE 1789, PEEK(89)
```

but if you've designed your own display list then you'll have to point to the right part of memory.

CALLING THE ROUTINE

Once it is ready for use the routine is called up by:

```
Q=USR(30204,ADR(TEXT$),X,Y)
```

Q is just a dummy variable, you can use any character as long as it is not a current one in your program as a value will be assigned to it when the routine returns to Basic.

30204 is the start of the machine code routine and must not be changed!

ADR(TEXT$). ADR returns the start address of the string holding your text. The routine must know when to stop plotting text so it looks for the "@" character. Therefore the end of the text within the string must be denoted by this symbol, or you can expect some weird results!

X and Y are the start coordinates of the text. X can be between 0 and 79, and Y between 0 and 24.

The text will automatically be wrapped around onto the next line should it overlap the edge of the screen.

APPLICATIONS

Now lets move on to some applications. Listing 2 shows how the routine works and is used, but it also shows how it can interact with keyboard input. You must remember that Basic doesn't consider this new text as characters but as graphics, therefore you can wave goodbye to all those commands such as Print and Input. An alternative is to use the Open and Get commands. With this a value is returned according to the key pressed and it is quite easy to filter out unwanted key-presses.

Before you can run either example you must type in and save Listing 1, using either LIST"C:" or LIST "D:filename". Next type in the example and use ENTER"C:" or ENTER "D:filename" to load the set up program back, merging them together. Finally SAVE or CSAVE the new listing before running it.

When you run Listing 2 you are given a simple questionnaire to fill in. The only valid keys are the letters "A" to "Z" and the numbers 1 to 0 and I've also included the ever useful delete backspace key.

Lines 110 to 200 is the main routine. It waits at line 110 until a key is pressed then the next 5 lines decide on the action to be taken.
Line 115 checks if it was the delete backspace key.
Line 120 checks for the Return key. Pressing the Return key moves you down to the next question.
Line 130 checks for the number keys.
Line 140 checks for the letter keys.
Line 150 checks for space bar.

If the routine gets to line 160 then it was none of the above keys therefore the key press was invalid and the program returns back to the get key line.

```
CS 1 REM ##################################
JG 2 REM # EIGHTY COLUMN TEXT ROUTINE    #
OS 3 REM #       by Matthew Bennett      #
SF 4 REM # ----------------------------- #
ZS 5 REM #  NEW ATARI USER - JUNE '92    #
CX 6 REM ##################################
NM 7 REM
JE 3498 REM  SET UP M/C CODE &
OB 3499 REM    CHARACTER SET
YF 3500 DIM HEX$(96),CN(23)
OH 3510 RESTORE 3640
CH 3520 FOR T=1 TO 23:READ A:CN(T)=A
KB 3530 NEXT T
SB 3540 RESTORE 4000:MEM=30204
NA 3550 FOR T=0 TO 10:READ HEX$,CKSUM:CK=
   0
OX 3560 FOR S=1 TO 96 STEP 2
EG 3570 B1=CN(ASC(HEX$(S,S))-47)
WI 3580 B2=CN(ASC(HEX$(S+1,S+1))-47)
SC 3590 B3=B2+(B1*16)
RX 3600 POKE MEM,B3:CK=CK+B3
RG 3610 MEM=MEM+1:NEXT S
JP 3620 IF CK<>CKSUM THEN ? " ERROR IN DA
   TA AT LINE ";4000+T:END
KD 3630 NEXT T
XA 3640 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,
   0,0,0,10,11,12,13,14,15
JZ 3650 RESTORE 5000
AN 3660 READ CH:IF CH=-1 THEN RETURN
RZ 3670 FOR T=0 TO 7:READ A
GP 3680 POKE 30720+(CH*8)+T,A:NEXT T
UT 3690 GOTO 3660
IL 3998 REM   80 COLUMN TEXT ROUTINE
OB 3999 REM    HEX-SAVER STYLE DATA
TD 4000 DATA 686885CC6885CB68688DFE066868
   8DFF06D8ADFC0685CDADFD0685CEA9008DFB06
   ADFB06CDFF06F020A9008DFA06A5CD,6631
MO 4010 DATA 18692885CD9002E6CEEEFA06ADFA
   06C908D0EBEEFB064C1D76ADFE06184A1865CD
   85CD9002E6CEA5CD8DF806A5CE8DF9,6689
AK 4020 DATA 06A0008CF706B1CBC97F900BB1CB
   E98091CBA2018EF706C940F03618B1CBC95FB0
   1418B1CBC91FB00818B1CB69404C92,6139
YN 4030 DATA 7618B1CBE91F85FBA97885FC06FB
   1806FB9004E6FCE6FC1806FB9006E6FC4CAE76
   60ADFE06184AB051A9008DF4062079,6372
WI 4040 DATA 77ACF406B1FB0A0A0A0A18AEF706
   E000F00249F0186DF60691CDEEF406ADF406C9
   08F00EA5CD18692785CD9002E6CE4C,5882
KQ 4050 DATA BA76ADF80685CDADF90685CEEEFE
   0618E6CB9002E6CC4C537660A9008DF40620BC
   77ACF406B1FBAEF706E000F002490F,6474
CD 4060 DATA 186DF60691CDEEF406ADF406C908
   F00EA5CD18692785CD90D6E6CE4C0B77ADF806
   85CDADF90685CEADFE06C94FF014EE,6728
UE 4070 DATA FE0618E6CB9002E6CC18E6CD9002
   E6CE4C5376ADFF06C917F012EEFF06A9008DFE
   0618E6CB9002E6CC4C0E7660A0008C,6241
ID 4080 DATA F606ACF406B1CD8DF506184EF506
   9005A9018DF606184EF5069008ADF60609028D
   F606184EF5069008ADF60609048DF6,5177
JK 4090 DATA 06184EF5069008ADF60609088DF6
   0660A0008CF606ACF406B1CD8DF506180EF506
   9005A9808DF606180EF5069008ADF6,5178
KE 4100 DATA 0609408DF606180EF5069008ADF6
   0609208DF606180EF5069008ADF60609108DF6
   066000000000000000000000000000,3152
OQ 4997 REM  80 COLUMN CHARACTER SET
KY 4998 REM
PI 4999 REM  SPACE CHARACTER
PP 5000 DATA 0,0,0,0,0,0,0,0,0
WW 5009 REM   ! to / CHARACTERS
FB 5010 DATA 1,0,4,4,4,4,0,4,0
RM 5020 DATA 2,0,10,10,0,0,0,0,0
RJ 5030 DATA 3,0,5,15,5,5,15,5,0
NJ 5040 DATA 4,0,4,14,12,6,10,4,0
WA 5050 DATA 5,0,8,9,3,6,12,9,1
RZ 5060 DATA 6,0,4,10,10,5,11,10,5
YH 5070 DATA 7,0,4,4,0,0,0,0,0
BT 5080 DATA 8,0,6,8,8,8,8,6,0
FY 5090 DATA 9,0,12,2,2,2,2,12,0
UW 5100 DATA 10,0,0,9,6,15,6,9,0
BN 5110 DATA 11,0,0,0,4,14,4,0,0
WA 5120 DATA 12,0,0,0,0,0,0,2,4
VT 5130 DATA 13,0,0,0,0,14,0,0,0
DI 5140 DATA 14,0,0,0,0,0,0,6,6
PR 5150 DATA 15,0,2,6,4,4,12,8,0
DW 5159 REM  NUMBERS 0 to 9
VA 5160 DATA 16,0,4,10,14,10,10,4,0
RE 5170 DATA 17,0,4,12,4,4,4,14,0
SN 5180 DATA 18,0,4,10,2,4,8,14,0
MK 5190 DATA 19,0,14,2,4,2,10,4,0
IW 5200 DATA 20,0,10,10,14,2,2,2,0
QV 5210 DATA 21,0,14,8,12,2,2,12,0
SM 5220 DATA 22,0,4,10,8,14,10,4,0
JG 5230 DATA 23,0,14,2,2,4,4,4,0
MS 5240 DATA 24,0,4,10,4,10,10,4,0
PB 5250 DATA 25,0,4,10,14,2,10,4,0
SQ 5259 REM  : to @ CHARACTERS
GB 5260 DATA 26,0,0,4,4,0,4,4,0
PG 5270 DATA 27,0,0,4,4,0,4,4,8
QH 5280 DATA 28,0,2,4,8,8,4,2,0
HF 5290 DATA 29,0,0,0,14,0,14,0,0
ME 5300 DATA 30,0,8,4,2,2,4,8,0
DJ 5310 DATA 31,0,4,10,2,4,0,4,0
VT 5320 DATA 32,0,0,6,14,14,8,6,0
ZN 5329 REM  LETTERS A to Z
ZP 5330 DATA 33,0,4,10,14,10,10,10,0
KN 5340 DATA 34,0,12,10,12,10,10,12,0
SG 5350 DATA 35,0,4,10,8,8,10,4,0
JX 5360 DATA 36,0,12,10,10,10,10,12,0
IO 5370 DATA 37,0,14,8,12,8,8,14,0
HD 5380 DATA 38,0,14,8,12,8,8,8,0
UG 5390 DATA 39,0,4,10,8,11,10,4,0
GS 5400 DATA 40,0,10,10,14,10,10,10,0
QP 5410 DATA 41,0,14,4,4,4,4,14,0
IG 5420 DATA 42,0,14,2,2,2,10,4,0
GR 5430 DATA 43,0,10,10,12,10,10,10,0
DR 5440 DATA 44,0,8,8,8,8,8,14,0
MR 5450 DATA 45,0,10,14,14,10,10,10,0
HY 5460 DATA 46,0,12,10,10,10,10,10,0
TS 5470 DATA 47,0,4,10,10,10,10,4,0
GS 5480 DATA 48,0,12,10,12,8,8,8,0
BM 5490 DATA 49,0,4,10,10,10,14,6,0
GT 5500 DATA 50,0,12,10,12,10,10,10,0
LL 5510 DATA 51,0,6,8,4,2,2,12,0
NG 5520 DATA 52,0,14,4,4,4,4,4,0
KI 5530 DATA 53,0,10,10,10,10,10,14,0
YY 5540 DATA 54,0,10,10,10,10,10,4,0
PA 5550 DATA 55,0,10,10,10,14,14,10,0
ZK 5560 DATA 56,0,10,10,4,10,10,10,0
OO 5570 DATA 57,0,10,10,4,4,4,4,0
XN 5580 DATA 58,0,14,2,4,4,8,14,0
AG 5589 REM  [ to _ CHARACTERS
JG 5590 DATA 59,0,14,8,8,8,8,14,0
NN 5600 DATA 60,0,8,12,4,4,6,2,0
KV 5610 DATA 61,0,14,2,2,2,2,14,0
DS 5620 DATA 62,0,0,4,14,10,0,0,0
AJ 5630 DATA 63,0,0,0,0,0,0,15,0
GE 5639 REM  CONTROL CHARACTERS ♥ to ↳
ON 5640 DATA 64,0,10,14,14,14,14,4,0
WC 5650 DATA 65,4,4,4,7,4,4,4,4
```

continued ☛

```
UJ 5660 DATA 66,4,4,4,4,4,4,4,4
FU 5670 DATA 67,4,4,4,12,0,0,0,0
WJ 5680 DATA 68,4,4,4,12,4,4,4,4
PO 5690 DATA 69,0,0,0,12,4,4,4,4
TI 5700 DATA 70,1,1,2,2,4,4,8,8
MV 5710 DATA 71,8,8,4,4,2,2,1,1
CM 5720 DATA 72,1,1,3,3,7,7,15,15
EV 5730 DATA 73,0,0,0,0,3,3,3,3
PK 5740 DATA 74,8,8,12,12,14,14,15,15
CH 5750 DATA 75,3,3,3,3,0,0,0,0
RS 5760 DATA 76,12,12,12,12,0,0,0,0
ZM 5770 DATA 77,15,0,0,0,0,0,0,0
EJ 5780 DATA 78,0,0,0,0,0,0,0,15
ZP 5790 DATA 79,0,0,0,0,12,12,12,12
CJ 5800 DATA 80,0,4,14,14,10,4,14,0
NK 5810 DATA 81,0,0,0,7,4,4,4,4
YY 5820 DATA 82,0,0,0,15,0,0,0,0
WX 5830 DATA 83,4,4,4,15,4,4,4,4
PP 5840 DATA 84,0,6,15,15,15,15,6,0
KM 5850 DATA 85,0,0,0,0,15,15,15,15
VF 5860 DATA 86,8,8,8,8,8,8,8,8
RV 5870 DATA 87,0,0,0,15,4,4,4,4
JU 5880 DATA 88,4,4,4,15,0,0,0,0
CE 5890 DATA 89,12,12,12,12,12,12,12,12
FI 5900 DATA 90,4,4,4,7,0,0,0,0
LA 5909 REM  ESCAPE CHARACTER
GO 5910 DATA 91,12,8,12,8,14,4,6,0
BC 5919 REM  CURSOR CHARACTERS
PI 5920 DATA 92,0,4,14,4,4,4,4,0
QD 5930 DATA 93,0,4,4,4,4,14,4,0
GX 5940 DATA 94,0,0,4,15,4,0,0,0
EI 5950 DATA 95,0,0,2,15,2,0,0,0
QV 5959 REM  ♦ CHARACTER (Ctrl + .)
KC 5960 DATA 96,0,4,14,14,14,14,4,0
KV 5969 REM  LETTERS a to z (Lower case)
SW 5970 DATA 97,0,0,6,10,10,10,6,0
MS 5980 DATA 98,8,8,12,10,10,10,12,0
CF 5990 DATA 99,0,0,6,8,8,8,6,0
TR 6000 DATA 100,2,2,6,10,10,10,6,0
UM 6010 DATA 101,0,0,4,10,14,8,6,0
NG 6020 DATA 102,0,2,4,14,4,4,4,0
XN 6030 DATA 103,0,0,6,10,10,6,2,12
FB 6040 DATA 104,0,8,8,12,10,10,10,0
SC 6050 DATA 105,0,4,0,12,4,4,14,0
IA 6060 DATA 106,0,2,0,2,2,2,2,12
MA 6070 DATA 107,0,8,10,12,10,10,10,0
XA 6080 DATA 108,0,12,4,4,4,4,14,0
NU 6090 DATA 109,0,0,10,14,14,10,10,0
CU 6100 DATA 110,0,0,12,10,10,10,10,0
OP 6110 DATA 111,0,0,4,10,10,10,4,0
OD 6120 DATA 112,0,0,12,10,10,12,8,8
PS 6130 DATA 113,0,0,6,10,10,6,2,2
BC 6140 DATA 114,0,0,12,10,8,8,8,0
QY 6150 DATA 115,0,0,6,8,6,2,12,0
PI 6160 DATA 116,0,4,14,4,4,4,2,0
AX 6170 DATA 117,0,0,10,10,10,10,6,0
ZD 6180 DATA 118,0,0,10,10,10,10,4,0
PG 6190 DATA 119,0,0,10,10,14,14,10,0
UH 6200 DATA 120,0,0,10,10,4,10,10,0
CJ 6210 DATA 121,0,0,10,10,10,6,2,12
VO 6220 DATA 122,0,0,14,2,4,8,14,0
QX 6229 REM  ♠ CHARACTER (Ctrl + ;)
OJ 6230 DATA 123,0,4,14,14,14,4,14,0
TJ 6239 REM  | CHARACTER (Shft + =)
TL 6240 DATA 124,4,4,4,4,4,4,4,4
XA 6249 REM  CLEAR, DELETE & TAB
RF 6250 DATA 125,0,14,12,10,2,2,0,0
YG 6260 DATA 126,0,2,6,14,14,6,2,0
UJ 6270 DATA 127,0,8,12,14,14,12,8,0
NY 6275 REM  END OF DATA
FL 6280 DATA -1
```

```
CS 1 REM ####################################
BF 2 REM # 80 COLUMN DEM #1 - KEYBOARD #
KM 3 REM # Requires 80 Column Routine  #
CV 4 REM ####################################
NK 5 REM
PA 10 GOSUB 3500
IZ 20 GRAPHICS 8+16:POKE 1788,PEEK(88):PO
   KE 1789,PEEK(89):POKE 710,0
DT 30 CLR :DIM IN$(2),TEXT$(45)
VF 40 FOR TXT=1 TO 11:TEXT$="@":READ TEXT
   $
FR 50 X=36-LEN(TEXT$):Y=TXT*2
ER 60 Q=USR(30204,ADR(TEXT$),X,Y)
UK 70 NEXT TXT:CLOSE #1
DO 80 XC=35:OPEN #1,4,0,"K:"
WV 90 FOR T=1 TO 10:X=36:Y=T*2
FM 100 IN$=">@":Q=USR(30204,ADR(IN$),XC,Y
   )
GJ 110 GET #1,K
ZC 115 IF K=126 AND X>36 THEN X=X-1:IN$="
    @":Q=USR(30204,ADR(IN$),X,Y):GOTO 110
CI 120 IF K=155 THEN 210
EQ 130 IF K>=48 AND K<=57 THEN 170
BM 140 IF K>=65 AND K<=90 THEN 170
OZ 150 IF K=32 THEN 190
MD 160 GOTO 110
SR 170 IN$=" @":IN$(1,1)=CHR$(K)
UR 180 Q=USR(30204,ADR(IN$),X,Y)
EI 190 IF X<79 THEN X=X+1
LS 200 GOTO 110
UB 210 IN$=" @":Q=USR(30204,ADR(IN$),XC,Y
   )
KC 220 NEXT T
EL 230 FOR DELAY=0 TO 500:NEXT DELAY
UU 240 RUN
HR 500 DATA NAME:@
AO 510 DATA ADDRESS:@
YM 520 DATA PAGE 6 SUBSCRIPTION NO.:@
AB 530 DATA COMPUTER MODEL:@
MY 540 DATA DO YOU OWN ... A DISK DRIVE?@
FL 550 DATA A MONITOR?@
CB 560 DATA A PRINTER?@
YE 570 DATA FAVOURITE TYPE IN GAME OF 91:
   @
PW 580 DATA BEST TYPE IN UTILITY OF 91:@
PB 590 DATA OTHER COMMENTS:@
ME 600 DATA  80 COLUMN DEMO #1 - Keyboard
    @
```

Example 1 - 80 column text in action showing how easy and fast if is to input text directly in 80 column mode

```
EX 1 REM ################################
ZW 2 REM # 80 COLUMN DEMO #2 - C.A.D. #
ZH 3 REM # Requires 80 Column routine #
FA 4 REM ################################
NK 5 REM
PA 10 GOSUB 3500
IZ 20 GRAPHICS 8+16:POKE 1788,PEEK(88):PO
   KE 1789,PEEK(89):POKE 710,0
LL 30 DIM TEXT$(50)
KO 35 TRAP 100
CM 40 RESTORE 1000:FOR LINES=0 TO 38
XL 50 READ NUM,X,Y:COLOR 1:PLOT X,Y
RI 60 FOR DRAW=1 TO NUM
SS 70 READ X1,Y1:DRAWTO X1,Y1
CI 80 NEXT DRAW
OJ 90 NEXT LINES
XK 100 RESTORE 2000:FOR TXT=0 TO 15
PX 110 TEXT$="@":READ X,Y,TEXT$
ZR 120 X=USR(30204,ADR(TEXT$),X,Y)
ID 130 NEXT TXT
NG 140 GOTO 140
MN 1000 DATA 4,0,0,319,0,319,191,0,191,0,
   0
US 1010 DATA 2,319,124,236,124,236,191
QI 1020 DATA 1,236,139;319,139
KZ 1030 DATA 1,236,154,319,154
HU 1040 DATA 1,0,171,319,171
FX 1050 DATA 1,50,171,50,191
PE 1060 DATA 4,111,40,126,40,126,130,111,
   130,111,40
OP 1070 DATA 14,132,40,144,40,144,96,145,
   99,148,105,153,109,159,111,162,111,162
   ,130
DZ 1080 DATA 154,128,147,125,141,121,135,
   115,132,109,132,40
FL 1090 DATA 14,105,40,105,109,102,115,96
   ,121,90,125,83,128,75,130,75,111,79,11
   1,84,109,89,105
JB 1100 DATA 92,99,93,96,93,40,105,40
NW 1110 DATA 1,89,40,30,40
VV 1120 DATA 1,71,130,30,130
XI 1130 DATA 3,36,44,38,40,38,130,36,126
QD 1140 DATA 1,40,44,38,40
EC 1150 DATA 1.40,126,38,130
WI 1160 DATA 1,71,111,50,111
KC 1170 DATA 3,54,115,56,111,56,130,54,12
   6
GY 1180 DATA 1,58,115,56,111
JH 1190 DATA 1,58,126,56,130
XW 1200 DATA 1,93,36,93,16
EC 1210 DATA 1,105,36,105,16
KO 1220 DATA 3,97,18,93,20,105,20,101,18
TT 1230 DATA 1,101,22,105,20
SU 1240 DATA 1,97,22,93,20
WV 1250 DATA 1,111,134,111,154
FQ 1260 DATA 1,126,134,126,154
WJ 1270 DATA 3,115,152,111,150,126,150,12
   2,152
YY 1280 DATA 1,115,148,111,150
DD 1290 DATA 1,122,148,126,150
DV 1300 DATA 1,132,36,132,16
IH 1310 DATA 1,126,36,126,16
JJ 1320 DATA 2,122,22,126,20,114,20
BL 1330 DATA 1,122,18,126,20
KW 1340 DATA 2,136,22,132,20,142,20
EX 1350 DATA 1,132,20,136,18
GM 1360 DATA 2,147,102,148,105,151,104
DE 1370 DATA 2,148,105,162,75,166,75
IQ 1380 DATA 2,91,121,90,125,86,126
AR 1390 DATA 2,90,125,75,75,71,75
SV 2000 DATA 61,16,DRG NO.:ABC/800-XL@
LQ 2010 DATA 61,18,DRAWN   :M.BENNETT @
MD 2020 DATA 61,20,SCALE   :    1:1 @
UW 2030 DATA 61,22,DATE    :14/01/1992@
ER 2040 DATA 20,22,ATARI LOGO REV.1 (C) A
   TARI CORP.@
PF 2050 DATA 1,22,PAGE 6 CAD.@
UA 2060 DATA 5,10,125@
UX 2070 DATA 11,15,25@
GW 2080 DATA 24,1,20@
BO 2090 DATA 29,19,25@
BB 2100 DATA 34,1,6@
SN 2110 DATA 42,9,R25@
XR 2120 DATA 14,9,R69@
AP 2130 DATA 54,4, 80 COLUMN TEXT DEMO #2
    @
AX 2140 DATA 59,6, PAGE 6 1992 @
NE 2150 DATA 56,8, Hit BREAK to exit. @
```

Example 2 - Using text and graphics together in a CAD environment

Despite all these checks, and in Basic too, the whole key press routine is pretty quick - try it. The only thing is the more valid keys you have the more work the routine has to do so if one of the arrow keys were pressed for example then you would have to program a cursor move rather than just printing the character.

Try deleting line 160 then running the program again. Now you'll be able to type anything:- lower case, inverse, and the control characters, but hit the arrow keys and you'll see what I mean.

COMBINING TEXT AND GRAPHICS

Listing 3 shows how this routine can be used as a text and graphics mixture. It draws a familiar logo, dimensioned as an engineering drawing would be. It's only an example but it's a good start for experimenting with your own 80 column text.

On a final note I'll leave you with some advice. I've noticed that after continually editing and running the examples, strange things start to happen. The text can become scrambled within the string and misprinted. The first thing to do if this happens is to press Reset and try again. If it is just the same then try saving the program and switching off the computer. Load the program back and try again, this will solve most problems but if it persists then look carefully at your program as this will be where the fault lies. Despite this the routine is reliable and worth experimenting with. Just don't forget that @ character!

ATARILAB

An add-on module and sensors for scientific projects was produced by Atari in 1983 but has only now been imported to the UK. Ian Finlayson wonders why it has taken so long for us to get such an exciting package

It is nice to have a change from the Tutorials and do a couple of software reviews. Both AtariLab and ChromaCad (separate review) are "serious" applications for your 8-bit Atari, but AtariLab is definitely easier to absorb. My thirteen year old son James found AtariLab easy to get into - almost like a game in its instant appeal, while ChromaCad requires a higher level of dedication.

Opening the AtariLab Starter Set immediately took me back several years. The large colourful box, excellent presentation, glossy manual and cartridge are all typical of the quality products that Atari used to produce. The copyright date on the manual is 1983 so it must be one of the later releases from Atari. I looked back in an Antic magazine and found the Starter Set advertised at $42.99 in September 1985 - if it was available over here it would have cost the same in pounds, that would be about £80 today. But we had to pay upwards of £15 for a game in those days!

ATARILAB STARTER SET

The starter set contains the basic equipment into which the experimental modules are connected, so it is essential to have the set to use any other AtariLab module. The Starter Set contains the temperature module.

The AtariLab interface unit is a box with a cable attached which plugs into a joystick port. The box has 8 plug points on it equivalent to the pins of the joystick port - 2 paddles, 2 PTRIG, 2 joystick up/down (used as control outputs) and 2 power points (5 volt). If you are a programmer you can address all these connections from Basic, but they are colour coded and you do not need to understand any of the internal workings to get to grips with the experiments.

The temperature module consists of a temperature probe which plugs into the AtariLab interface, a small thermometer and a ROM cartridge to go in your computer. As the software is on ROM you can be sure it will run on all Atari 8-bit computers. It is quite possible to plug everything in, switch on and try out the package without reading the manual, but the manual is well laid out and it contains a lot of information of a general nature about experimental method, tabulating and graphing results and about temperature so it is well worth reading. It also has details of how to carry out specific experiments, so you don't have to make up your own in the first instance, though you will probably have some ideas of your own before long. There are seven projects in the manual.

The software on the cartridge is quite good, it allows you to calibrate the temperature sensor, use the sensor as a digital thermometer displaying results on screen and do experiments recording temperatures as they change over time. The time base can be changed to a range of different settings from a very short 10 seconds for measuring rapid temperature changes up to 24 hours. The latter setting allows experiments like measuring the outdoor temperature change through a full day. The graphs do not use a very high resolution graphic mode, but are quite good enough for the accuracy of experiments you are likely to achieve at home. The graphs can be printed out, if you have an Epson compatible printer, in the same rather blocky graphic style.

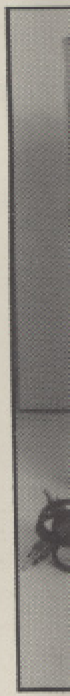
Results are plotted graphically and stored in a data table in the computer's memory. They can also be saved to disk, but if you want to recover them later it will have to be in Basic rather than using the cartridge software. The manual explains how this is done and gives a Basic program listing. It also gives example programs in both Basic and Logo with enough detail to get you going writing your own programs for use with the AtariLab hardware. I don't suppose that anyone is still using the Logo language though - I did have the cartridge at one time and it is a good way of starting to learn modular programming (those little turtles a fun too!) but I found it too slow and very memory intensive.

Overall this kit is very good. The only jarring note is the occasional intrusion of its American origins - for example, the experiment to relate the chirping of crickets to air temperature is difficult to do in England! The package is particularly suitable for a youngster about 11 years old just getting into science, but it is fun and flexible enough to have appeal for a very much larger age range. It could also provide a starting point for more complex projects and experiments - are there any budding scientists out there? Keep us informed of your developments.

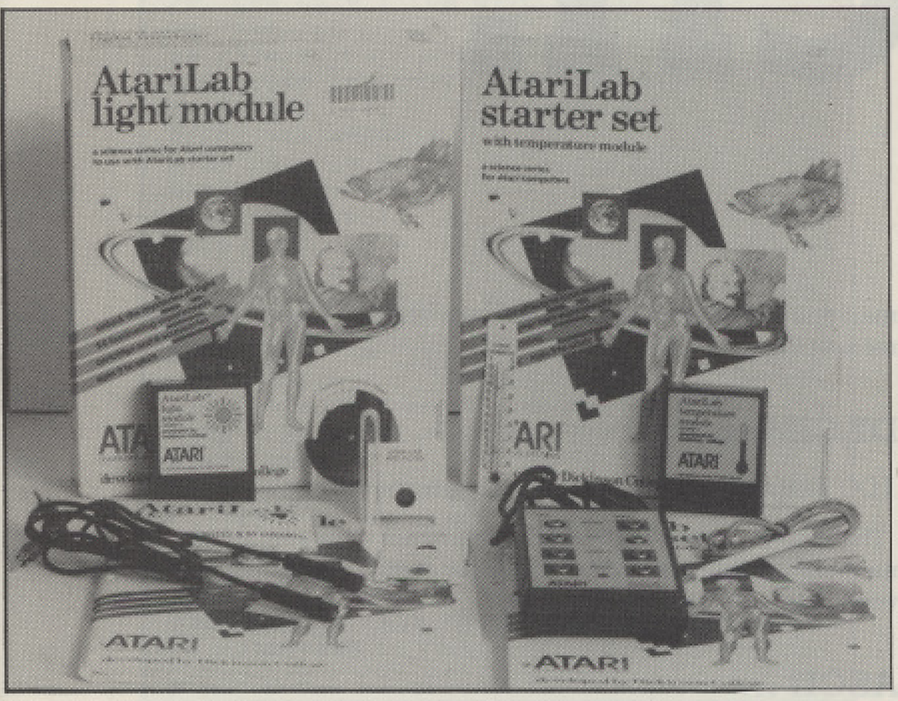
LIGHT LAB MODULE

The Light Lab module is a separate package which works with the Atarilab interface from the starter set. It has its own program cartridge, a light sensor, a light source, polaroid filters, coloured filters, a stand, test tube, light stick and glow panel. This module is not quite as intuitive to use as the temperature module, but once again the manual gives a good introduction to the subject and a range of projects to carry out, some of which combine light and heat sensing.

The software is set out in a very similar way to the Tempera-



Lo
Ato



Lots of exciting projects can now be undertaken with your Atari for school, for research or just for fun

ture Module so it is quick to learn. Also, like the temperature module, it is possible to display and print graphs and to store experimental data to disk, and examples of Basic programs for use of the light module hardware and for recovering stored data are given.

Once again a very complete, polished package with good educational potential. If you get the Starter Set I'm sure you will want to get this module as well.

IN CONCLUSION

The interface unit from the Starter Set is fitted with standard phono sockets so it provides a very convenient way of connecting outside equipment to the computer. After following the examples of the temperature and light experiments it should be possible to make up a large range of further projects. The interface can accept as an input a range of resistance values similar to that of a game paddle. It can also output pulses (which can be used as timing signals) and provide a low current power source (5 volt). If higher current is needed the low power source could be used to trigger a relay. So if you gallop through the contents of the instruction manuals the principles you pick up on the way can be followed up and elaborated extensively with a little electronics and Basic programming ability.

All in all these packs are good quality and tremendous value. They are not being made any more so you will have to rush out and buy before all stock goes.

These items are available from Derek Fern at Micro Discount. We believe the price is around £12.95 for each module but we suggest that you check with Micro Discount first. Availability is limited.

KRUNCH!

A Hexadecimal machine code autorunning loader by David Rawlings

Storing machine code data in Basic can be done in several ways but hexadecimal is the most common when it comes to magazine listings. This short routine will "KRUNCH" through lines of hexadecimal data stored in Basic, convert it into the respective object code and directly run the program all in a few seconds.

BACKGROUND

Since the early 1980s many magazines have published machine code programs as listings of Basic code which generated an autorunning machine code file which was run at a later date. Some of the best of these were produced by ANALOG magazine in the USA. Various methods of including

```
CS 1 REM ##############################################
UN 2 REM # KRUNCH!  by David Rawlings  #
ZQ 3 REM #  NEW ATARI USER - JUNE '92  #
CV 4 REM ##############################################
LY 5 LINES=XXX:LOMEM=XXXXX:START=XXXXX
SD 6 REM h[illegible]
   [illegible]
   /♦♥♥♥♥♥♥♥♥♥♥MEMSTART♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
YV 7 REM h[illegible]
   [illegible]
   [illegible]
CZ 8 REM 8[illegible]
   [illegible]
   i[illegible]
YJ 9 REM [illegible]
SB 10 V=256:L=PEEK(138)+V*PEEK(139)-366:H
   =PEEK(741)+V*PEEK(742)-255:FOR I=0 TO
   107
MK 11 POKE 1536+I,PEEK(L+I):POKE H+I,PEEK
   (L+I+114):POKE H+I+108,PEEK(L+I+228):I
   F I<24 THEN POKE H+I+216,PEEK(L+I+342)
QB 16 NEXT I:POKE 1616,77:A=USR(1536):BAS
   LO=PEEK(1790)+V*PEEK(1791)+13:BASHI=BA
   SLO+LINES*90+(LINES-1)*6
FG 17 TEMP=BASHI:GOSUB 22:POKE 204,HI:POK
   E 203,LO:TEMP=BASLO:GOSUB 22:POKE 1537
   ,HI:POKE 1536,LO:TEMP=LOMEM:GOSUB 22
ZK 20 POKE 1538,LO:POKE 1539,HI:START=TEM
   P:GOSUB 22:POKE 1541,LO:POKE 1542,HI:P
   OKE 742,PEEK(742)-1:A=USR(H)
TG 22 HI=INT(TEMP/V):LO=TEMP-(HI*V):RETUR
   N
QL 999 REM MEMSTART
```

Listing 1

machine code data within Basic were derived. The three commonest were as follows:

DECIMAL ...

100 Data 169,0,144,2..........etc.

This was readable but required approximately 4 bytes of memory to store one byte of machine code. Listings became very long.

ASCII ...

100 Data SjdfHghjTrFd4%678&%4££

This is the most memory efficient way of storing data at approximately one byte per byte. The numerical value of each character translated directly into a machine code byte. Unfortunately typing this in is a nightmare and prone to serious error. Some characters also cannot be directly printed on the screen. It was only useful for small MC routines although some programs used decimal data statements in one Basic program to generate the ASCII data statements in another Basic program! It is all getting very complicated!

HEXADECIMAL ...

100 Data A912E49A5B6379C4D5E.....

This is the best balance for long data programs. Two characters correlate to one value e.g. A9 = 10x16+9=169 in the above case. The value 169 is the equivalent of LDA - Load Accumulator in Assembly language. Most cases used 90 characters per data statement which produced 45 bytes of machine code. The basic program containing this code would read the data and generate a separate file containing the calculated data. Often two different types of program would be required to generate a version for disk or cassette.

WHAT DOES KRUNCH ACTUALLY DO THEN?

The Atari Assembler Editor program is useful for producing short segments of machine code. It can also be used for long machine code programs but assembly becomes painfully slow and debugging rather difficult. It is however easy to produce short to medium machine code programs or routines. Several good programs exist in Basic for taking this object code and creating Basic data statements from it. The simplest and best of these was called "Boffo" by Tom Hudson, published by

```
10 ;
20 ; SIMPLE DEMO
30 ; FILLS SCREEN WITH GARBAGE
40 ; ASSEMBLER EDITOR - D. RAWLINGS
50 ;
60  *=9000
65 ;
70  LDA #$20 ; LOW BYTE CLOOCK
80  STA 710
90  STA 712
0100 LOOP LDA 53770 ; RANDOM NUMBER
0110  INX
0120  STA 40000,X
0130  STA 40256,X
0140  STA 40504,X
0150  LDA TEXT,X
0160  SEC
0170  SBC #32
0180  STA 40770,X
0185  LDA 19
0186  STA 712
0190  CLC          ;CANNOT USE JMP
0195  BCC LOOP     ;IF CODE RELOCATABLE
0200 TEXT .BYTE "SIMPLE DEMO CREATED "
0210  .BYTE "                    "
0220  .BYTE "WITH THE ATARI ASSEMBLER EDI
   TOR"
0230  .BYTE "                    "
0240  .BYTE "HEX CONV - 'BOFFO' -TOM HUDS
   ON      "
0250  .BYTE "RUN FROM BASIC - KRUNCH - D.
    RAWLINGS            rrrrrrrrrrr
              "
```

Listing 2

```
EX 1 REM ##########################################
TQ 2 REM # THE KRUNCH DEMO                        #
NN 3 REM #                     by David Rawlings #
FA 4 REM ##########################################
PB 5 LINES=5:LOMEM=9000:START=9000
SD 6 REM [illegible]
   [illegible]
   /♦♥♥♥♥♥♥♥♥♥♥MEMSTART♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥♥
YV 7 REM [illegible]
   [illegible]
   [illegible]
CZ 8 REM [illegible]
   [illegible]
   [illegible]
YJ 9 REM [illegible]
SB 10 V=256:L=PEEK(138)+V*PEEK(139)-366:H
   =PEEK(741)+V*PEEK(742)-255:FOR I=0 TO
   107
MK 11 POKE 1536+I,PEEK(L+I):POKE H+I,PEEK
   (L+I+114):POKE H+I+108,PEEK(L+I+228):I
   F I<24 THEN POKE H+I+216,PEEK(L+I+342)
QB 16 NEXT I:POKE 1616,77:A=USR(1536):BAS
   LO=PEEK(1790)+V*PEEK(1791)+13:BASHI=BA
   SLO+LINES*90+(LINES-1)*6
FG 17 TEMP=BASHI:GOSUB 22:POKE 204,HI:POK
   E 203,LO:TEMP=BASLO:GOSUB 22:POKE 1537
   ,HI:POKE 1536,LO:TEMP=LOMEM:GOSUB 22
ZK 20 POKE 1538,LO:POKE 1539,HI:START=TEM
   P:GOSUB 22:POKE 1541,LO:POKE 1542,HI:P
   OKE 742,PEEK(742)-1:A=USR(H)
TG 22 HI=INT(TEMP/V):LO=TEMP-(HI*V):RETUR
   N
QL 999 REM MEMSTART
QO 1000 DATA A9208DC6028DC802AD0AD2E89D40
   9C9D409D9D389EBD492338E9209D429F4C3023
   53494D504C452044454D4F20
```

Listing 3

ANALOG Computing. Using this program it is possible to build up large programs containing lines of hexadecimal or decimal data, but there is still the problem of converting this to machine code and running the created program. That is what KRUNCH actually does. Simply place this routine at the start of all your hexadecimal data and adapt line 5 to state the starting point in memory of the code and the run address where operation is commenced. This may or may not be the same value.

On running the program the following operations are carried out.

- *A small MC search routine is loaded into Page 6 to look for the beginning of the data within the Basic code.*
- *A second routine is set up at the top of memory. This reads through the basic data as it lies in the computer memory, creates a single byte from each hexadecimal pair and copies it into the top of memory.*
- *The created data is then moved from the top to its appropriate place in memory*
- *The new program is automatically run.*

One of the major features of the program is that long segments of hexadecimal can be used. The created code is usually intended to run in the same area as is actually used by Basic itself. To create the code in its correct place would therefore corrupt the Basic program before it had finished its work. To counteract this the calculation starts at the end of the DATA working down through memory, placing the new code at the top. This way if any overlap occurs the relevant data has already been used. This new code is then copied directly down to its intended position byte by byte and then run. If the new program does overlaps the Basic code then this will be corrupted and on exiting the machine code the Basic may well have gone for a walk.

HOW TO USE KRUNCH!

Listing 1 is the original KRUNCH program. Type this in and save to disk as LIST "D1:KRUNCH.BAS"

Load up your hexadecimal code and merge this with KRUNCH by loading it using ENTER "D1:KRUNCH.BAS"

Change line 5 to adjust the number of data lines, the starting point for the code and the run address.

Add in any REM statements at the top of the new program to remind yourself of what it is all about and save the whole program to disk under any file name you like. Always SAVE before running anything valuable particularly where machine code is involved. Any wee mistake and your computer can go into a deep coma.

The same program will run from cassette or disk so there is no need for separate versions.

Run the program. There will be a few seconds delay as the system loads its own routines from its data. As it searches the memory for the start of the data the background changes colour. Actually this was to tell me what the program was doing because with the Assembler Editor you tend to be left in the dark a bit while it is working. A maximum of 3 seconds later there is your machine code running as it was intended. The system works well with several of the larger MC programs from ANALOG; processing, creating and running Tom Hudson's "Bacterion" in a total of around 4 seconds, producing over 5K of code. All my own assembler programs work well.

- The program is written to use as little memory as possible and uses the equivalent of that used by the previous programs which create a separate running file. Hence it is crammed. You can change line 5 and add any REM statements. Lines 6-22 must be left intact. Clever routines look for its own data stored

```
CS 1 REM ##########################################
BB 2 REM #    BOFFO  by Tom Hudson         #
MJ 3 REM # Originally published by and #
GB 4 REM #      copyright of ANALOG        #
CW 5 REM ##########################################
NL 6 REM
CT 10 TRAP 40000:? "↖ASSEMBLY-TO-BASIC DA
   TA CONVERTOR":? "↓By Tom Hudson, ANALO
   G Computing"
FA 20 DIM FILE$(15),FI$(17),D$(1),HX$(16)
   ,DH$(1),CK$(1),OD$(1),ODMSG$(6):HX$="0
   123456789ABCDEF"
LQ 30 POSITION 2,5:? "↑↑  OBJ/DATA file";
   :INPUT OD$:IF OD$="O" THEN ODMSG$="OBJ
   ECT":GOTO 60
VW 40 IF OD$<>"D" THEN 30
FO 50 ODMSG$="  DATA"
VP 60 POSITION 2,7:? "↑↑";ODMSG$;" filena
   me";:INPUT FILE$:TRAP 120:IF LEN(FILE$
   )=1 THEN 90
EJ 70 IF FILE$(2,2)=":" THEN FI$=FILE$:GO
   TO 100
FM 80 IF FILE$(3,3)=":" THEN FI$=FILE$:GO
   TO 100
DZ 90 FI$="D:":FI$(3)=FILE$
FY 100 OPEN #1,4,0,FI$:IF OD$="O" THEN GE
   T #1,BYTE:GET #1,BYTE2:IF BYTE<>255 OR
    BYTE2<>255 THEN 130
NL 110 GOTO 150
IX 120 ? FILE$;" INVALID FILE,";:GOTO 140
EE 130 ? FILE$;" NOT OBJ FILE,";
WB 140 ? " PRESS RETURN";:INPUT D$:CLOSE
   #1:GOTO 60
PX 150 POSITION 2,9:? "↑↑ BASIC filename"
   ;:INPUT FILE$
JX 160 TRAP 200:IF FILE$(2,2)=":" THEN FI
   $=FILE$:GOTO 190
PT 170 IF FILE$(3,3)=":" THEN FI$=FILE$:G
   OTO 190
ET 180 FI$="D:":FI$(3)=FILE$
DL 190 OPEN #2,8,0,FI$:GOTO 210
CO 200 ? FILE$;" INVALID FILE, PRESS RETU
   RN";:INPUT D$:CLOSE #2:GOTO 150
KA 210 POSITION 2,11:? "↑↑Starting lineno
   ";:TRAP 210:INPUT LINE:TOTAL=0
NA 220 POSITION 2,13:? "↑↑ Line increment
   ";:TRAP 220:INPUT INC
JW 230 POSITION 2,15:? "↑↑    Decimal/Hex
   ";:INPUT DH$:IF DH$<>"D" AND DH$<>"H"
   THEN 230
HD 240 POSITION 2,17:? "↑↑ Bytes per line
   ";:TRAP 240:INPUT BLIN
WG 250 POSITION 2,19:? "↑↑ Checksum (Y/N)
   ";:INPUT CK$:IF CK$<>"Y" AND CK$<>"N"
   THEN 250
DL 260 COUNT=0:TRAP 420
FG 270 IF OD$="D" THEN LA=0:HA=65535:TOTL
   EN=65536:TLC=-1:GOTO 310
LJ 280 GET #1,LO1:GET #1,HI1:GET #1,LO2:G
   ET #1,HI2:LA=LO1+HI1*256:HA=LO2+HI2*25
   6:TOTLEN=HA-LA+1:TLC=-1
NX 290 IF HA=737 AND LA=736 THEN 420
OT 300 IF COUNT>0 AND LA<>LL+1 THEN ? "↖
   ERROR!!! MEMORY NOT CONTIGUOUS!":END
JN 310 LL=HA:IF TOTAL>0 THEN 330
OP 320 X=-999
JH 330 TLC=TLC+1:IF TLC=TOTLEN THEN 270
XN 340 GET #1,BYTE:TOTAL=TOTAL+1:COUNT=CO
   UNT+1:GNDTOT=GNDTOT+BYTE:IF CK$="Y" AN
   D GNDTOT>999 THEN GNDTOT=GNDTOT-1000
HF 350 IF X=-999 THEN ? #2;LINE;" DATA ";
   :LINE=LINE+INC:X=0
PK 360 IF DH$="D" AND X>0 AND X<BLIN THEN
    ? #2;",";
OL 370 X=X+1:IF DH$="H" THEN BH=INT(BYTE/
   16):BL=BYTE-(BH*16):? #2;HX$(BH+1,BH+1
   );HX$(BL+1,BL+1);:GOTO 390
PO 380 ? #2;BYTE;
PG 390 IF X<BLIN THEN 330
BM 400 IF CK$="N" THEN ? #2:GOTO 320
TJ 410 ? #2;",";GNDTOT:GOTO 320
ER 420 IF PEEK(195)<>136 AND PEEK(195)<>0
    THEN ? "↖ABNORMAL TERMINATION (ERROR
    ";PEEK(195);")":END
OZ 430 IF CK$="N" OR X=-999 THEN 490
OK 440 IF DH$="D" THEN 470
DM 450 ? #2;"00";:TOTAL=TOTAL+1:X=X+1:IF
   X<BLIN THEN 450
QJ 460 GOTO 480
FY 470 ? #2;",0";:TOTAL=TOTAL+1:X=X+1:IF
   X<BLIN THEN 470
MM 480 ? #2;",";GNDTOT
MM 490 ? #2:? #2;LINE;" REM * ";TOTAL;" B
   YTES":CLOSE #1:CLOSE #2:END
```

Listing 4 - Tom Hudson's BOFFO from ANALOG magazine

in REM statements by calculating their position in respect of the present position of the Basic Interpreters within the Basic Code. Do not insert any lines here or the program will not work.

- Sorry, but I have used ASCII data in lines 6-9. Unfortunately it is the most memory efficient. I have stored it in REM statements as it overcomes some problems with control codes on the screen, provided the program can actually locate the code! Ensure each character is correct. Use appropriate control and inverse keys and don't forget to use TYPO 3!
- Line cramming is memory efficient. Some lines exceed the 3 screen lines permitted. Type POKE 82,0 in direct mode to allow the full 40 column display. This should make it easier to enter.
- It is recommended that DATA is started at line 1000. Precede the start of data with a program line as in line 999

999 REM MEMSTART

The first part of the program searches the whole computer memory for MEMSTART and then notes the next DATA line as the start of the relevant code. Each data line must contain 90 characters corresponding to 45 bytes with no checksum.

- The program works with almost all cases I have tried. It temporarily uses page 6 and an area at the top of memory. Occasionally if your MC program uses this area for data there may be some garbage about or scores/player information may have data initially applied to it at the start if the program does not zero all its variables.
- Code can come from any source but remember that some MC files contain data right at the start defining the position of the code and running address which should not be confused with the first program commands. Tom Hudson's "Boffo" sets up Assembled code nicely for this routine.

So that is it. A useful clever little tool I wish I had completed 8 years ago! Run your hex direct from Basic and amaze your friends.

Listing 1 - The original KRUNCH program

Listing 2 - Source code of a short demo written with the Assembler Editor.

Listing 3 - The assembled object code has been converted to Basic hexadecimal data statements and has been merged with KRUNCH. This program can then be run. The program will run in a few seconds. Most of this processing time is the Basic initialising its MC data. It takes as long to KRUNCH 100 bytes as it does 8 Kbytes. Note that the demo has been deliberately set to run at $2328 (decimal 9000). With DOS installed this will overlap with the Basic program. Press RESET and list the program. You will note that the end of the program has been corrupted by the working machine code.

Listing 4 - Tom Hudson's BOFFO

CONTRIBUTIONS

FAME...

thrills ...

and a few bob in your pocket!

Why not turn the love of your Atari into a few pounds to spend as you wish? Lots of people have done so by getting something published in NEW ATARI USER and they have also experienced the thrill of seeing their name in print. There really is something special about opening up a magazine and finding something that you have written all nicely laid out with your name at the top!

We pay for articles and programs on the following basis

£50 for the 'star' program listing each issue

£25 for all other listings published

£50 for the DISK BONUS program, if used on its own

£50 or more for multi-page articles

£25 for a single page article or review

plus other sundry payments for various items published

WHAT SHALL I WRITE ABOUT?

Programs for the XL/XE can be on almost anything, as a scan through past issues will reveal. We are short of good arcade games though and love stuff in machine code but Basic is fine if the game is good.

As for articles, the main aim is to write about something you really know about. Chances are that if you have discovered something that interests you enough to write about it, it will interest others as well.

All programs must be submitted on disk if possible. Cassettes will be accepted but we can't guarantee that they will load, so the risk is yours. Articles should be submitted as text files on disk wherever possible with printed copy if you have a printer.

We are not really fussy about presentation, as long as the programs or articles are well written, but the easier you make it for us, the better chance that your work will be published. We work on close deadlines each issue and there is nothing worse that to select a really good looking program only to find that we can't figure out how to use it because the author didn't write up the instructions!

We can't guarantee that we will use every item submitted and we can't write back with reasons for not selecting certain articles or programs, but a lot do get published, as our regular contributors will know, so give it try.

Send YOUR contributions to
THE EDITOR, PAGE 6,
P.O. BOX 54, STAFFORD, ST16 1DR

BACK ISSUES

The following back issues of NEW ATARI USER are still available

Issue 31	Issue 44
Issue 32	Issue 45
Issue 33	Issue 46
Issue 34	Issue 47
Issue 36	Issue 48
Issue 37	Issue 49
Issue 38	Issue 50
Issue 39	Issue 51
Issue 40	Issue 52
Issue 41	Issue 53
Issue 42	Issue 54
Issue 43	Issue 55

DISKS ARE AVAILABLE FOR ALL THESE ISSUES

BACK ISSUES are £1.75 each in the UK (inc. post & packing), £2.40 for Europe or surface mail elsewhere and £3.50 for Air Mail outside Europe. Prices include postage
ISSUE DISKS are for any 48k or 64k 8-bit Atari
Each disk is £2.95. Postage FREE in U.K.
Overseas add £1 per order (any number of disks)
Send your order to

PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR, ENGLAND
ACCESS and VISA accepted. Telephone 0785 213928

THE TIPSTER



Another issue another cracking Tipster column! This issue we have more hints and tips for Alternative Reality and the complete solution and accompanying map to Voodoo Castle by the master of adventure games himself Scott Adams.

Montezumas revenge has had its full map exposed (all the levels not just the first two) but will have to be held over to next issue due to lack of space but in this issue the wall crawler strikes back with the solution to Spider-man and there is a packed Quick E's section.

Ever wanted to video your best high scores? Then I'll tell you how to do it later in the column, but let's cut the crap (as they charmingly say in the US of A) and plough bravely on to the abyss called Games Players Hell where your only saviour is yours truly.

ALTERNATE REALITY

THE DUNGEON REVISITED

Alain Dessauvage of Brussels responds to the tips issued about Alternative Reality: The Dungeon. O.K. so the tips I gave out were never meant to be the be all and end all of tips for this incredible game. What Alain has come up is a more comprehensive list of facts and tips to help you complete the game more easily.

The answer to the riddles of the Gargoyle are: Shipwreck, Oracle and Bloodstone.

To kill off the Great Wyrm you need to be in possession of the Amethyst Rod and the Temporal Fugue Spell. The Rod is located in the SW corner of level 1 near the Sword of the Adept. You can get the Fugue spell if you free the Ozoob, the Palace Prisoner. Now run to the Hall of the Adept on level 2 and find the place where a purple pyramid is painted. Use the Rod. You will be teleported to a secret alley on level 1 where you will find a Solar Suit and the Gauss Gun. The Solar Suit protects you against the Dragons Breath and the Gauss Gun combined with the Temporal Fugue spell is rather awesome to use.

Still, you'd better have a few golden horns at hand (na what I mean?)

Also avoid getting too many objects otherwise you could end up with a visit or two from the Devourer.

QUICKIES ... QUICKIES ... QUICKIES ... QUICKIES ... QUICKIES ...

Stephen Rambaran (sorry if I haven't spelt your name right) has been burning the midnight oil producing such a huge list of what are in my opinion some of the best games that he has forgotten to include his address. He brings us tips for **GUN-LAW**, **MOLECULE MAN**, **THRUST**, **WAR HAWK**, **QUASIMODO**, and **ENCOUNTER**.

O.K. lets get cracking, in **GUNLAW** you can't continue from where you left off but if you just stay at the bottom of the first screen and only shoot those soldiers that come onto the screen then you should be alright and you'll get a huge score. If you move up the screen then remember to keep moving and also remember that rocks repel bullets so use them to hide behind if things get too hairy. The second level (or is it part?) has you trying to get past the laser gates. The best way to get past these is to go up the side of the screen and then stand directly in front of them, wait until they turn off then run like hell to get past them and saunter back to the side of the screen. On the third level you have to go through the houses and then past the lakes. That's as far as Stephen has got but he's working on it.

MOLECULE MAN can be beaten by loading up the editor and placing a lot of money around your starting place and then putting some more at strategic points throughout the game so that you don't run out of bombs and time.

The ship that you pilot in **THRUST** has a laser that can be used to fire at the reactor several times so that a countdown appears and then you can leave the level by going up. This completes the level and so gains you access to the later levels but they can get tricky.

When you go through the later levels of **WAR HAWK** you will get the chance to get an icon that increases your rate of fire to that of homicidal.

When you have finished the first level of **QUASIMODO** put the gem in the first case and then go to the left wall and jump against it. A shadow of the portal should appear and you can go through to skip the part of the game with the archers.

To deal with incoming missiles in **ENCOUNTER** get parallel with a column and then move backwards and wait for the missile to come into your sights and then blast it. The tunnel is a doddle if you only move if there is an asteroid directly in your sights, the others will go past you harmlessly. The blue light on your console indicates when the saucer is about to fire, move in any direction except towards or away from the saucer (i.e. either left or right at any angle)

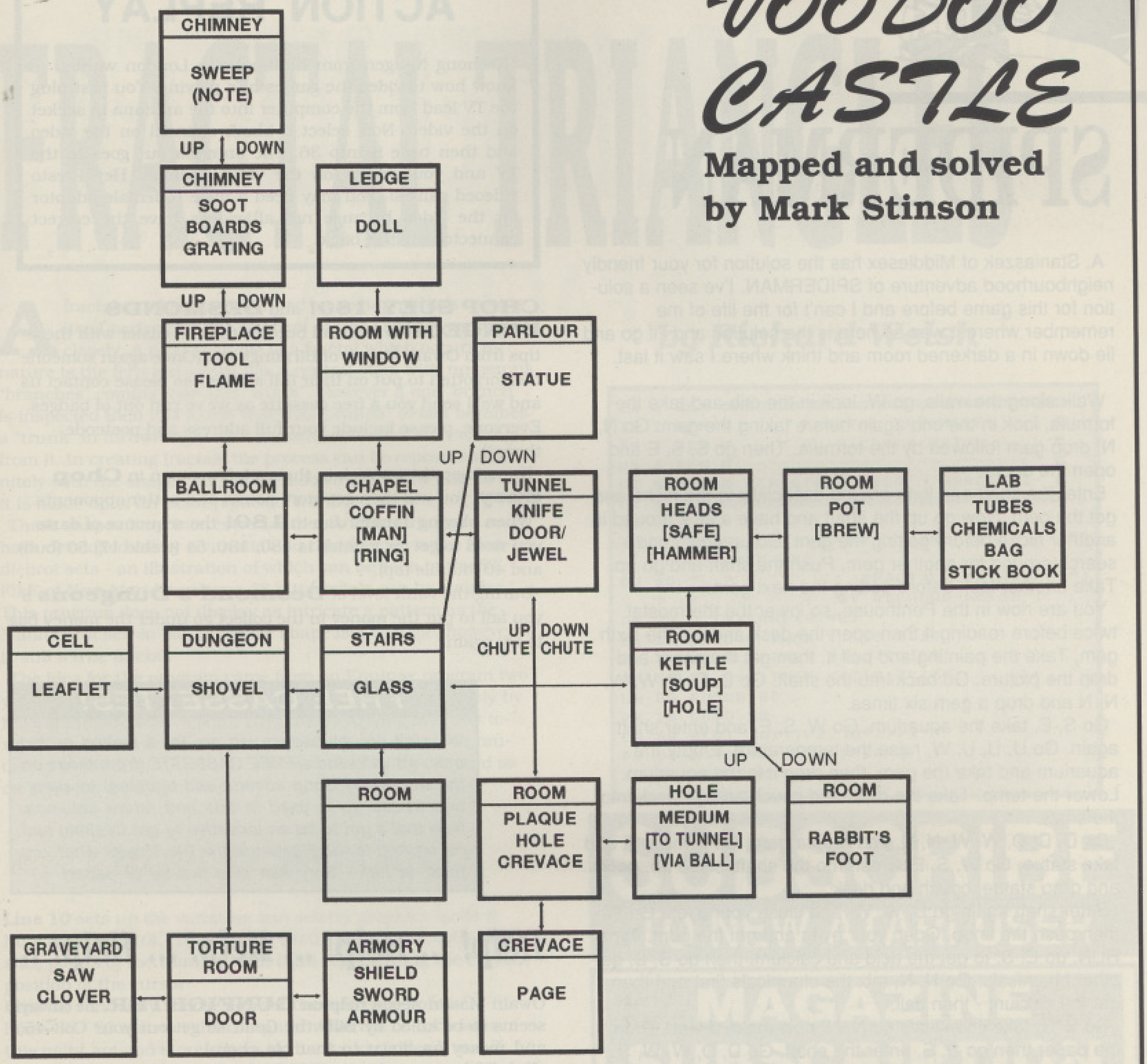
From The Netherlands and Magic Star Software (send in your address please lads!) comes the solution to the colour problem in the Rainbow Room (the temple) in **THE GUILD OF THIEVES**.

You are on the black square ..... Type: SE, N, E, E, SE, S, SW, E. You are now on the White square (and you can enter the house now) The way back ... Type: W, NE, N, NW, W, W, S, NW (the opposite)

You are now (back) on the black square.

VOODOO CASTLE

Mapped and solved by Mark Stinson



VOODOO CASTLE

Scott Adams's Voodoo Castle has the mystery removed from it as our intrepid explorer and cartographer Mark Stinson (from the French colony of Ashby de la Zouch) maps and solves its mysteries and lays them out for all to see.

As always the solution is backwards so that STOP TAPE = POTS EPAT NEPO NIFFOC - TEG GNIR - E - TEG EFINK - EVAW GNIR - PORD GNIR - OG ETUHC -TEG EUQALP - OG ELOH - NOMMUS MUIDEM - KOOL LLAB - W - W - OG ECALPERIF - TEG LODI - S - E - S - W - S - E - TEG DROWS - TEG DLIEHS - W - N - E - TEG SSALG - E - EVOM ETTLEK - OG ELOH - DAER EUQALP - PORD EUQALP - NAELC LODI - TEG TOOF - U - N - LLUP DAEH - PORD DROWS - NRUT 38 (YTRIHT THGIE) - NRUT 33 (YTRIHT EERHT) - TEG REMMAH - PORD SSALG - PORD HEAD - E - E - XIM SLACIMEHC - TEG SLACIMEHC - TAE SLACIMEHC - W - W - S - W - W - S - OG ROOD - KOOL EVARG - TEG REVOLC - TEG WAS - E - N - E - N - N - OG WODNIW - TEG LLOD - S - S - TUP TOOF - NO NAM - W - OG ECALPERIF - NEPO EULF - OG EULF - LLUP SLIAN - PORD SLIAN - PORD SLIAN - PORD REMMAH - LLUP SDRAOB - WAS ETARG - PORD SDRAOB - SSERP NOTTUB - HSUP PEEWS - DAER REPAP - PORD REPAP - D - D - S - E - S - OG SRIATS - YAS PAZ - NETSIL - D - E - N - E - E - TEG GAB - W - W - S - W - N - PORD DLEIHS - E - OG ETUHC - EVAW GAB - OG KCARC - TEG EGAP - S - NEPO GAB - TEG KCITS - TEG KOOB - DAER KOOB - DAER EGAP - PORD KOOB - PORD EGAP - PORD GAB - OG ELOH - KOOL LLAB - W - ELCRIC NIFFOC - EVAW KCITS - LLEY TNAHC



SPIDERMAN

A. Staniaszek of Middlesex has the solution for your friendly neighbourhood adventure of SPIDERMAN. I've seen a solution for this game before and I can't for the life of me remember where it was so here is the solution and I'll go and lie down in a darkened room and think where I saw it last.

Walk along the walls, go W, look in the crib and take the formula, look in the crib again before taking the gem. Go N, N, drop gem followed by the formula. Then go S, S, E and open the doors.

Enter the shaft and look around especially in the niche and get the gem. Now go up the shaft and have a look around in another niche before getting the gem. Go up again and search around for another gem. Push the shaft and go up. Take another look before getting the next gem.

You are now in the Penthouse, so lower the thermostat twice before reading it then open the desk and get the sixth gem. Take the painting and pull it, then get the paper and drop the picture. Go back into the shaft. Go D, D, D, W, W, N, N and drop a gem six times.

Go S, E, take the aquarium. Go W, S, E, and enter shaft again. Go U, U, U, W, raise the temperature. Empty the aquarium and take the gem, then drop it in the aquarium. Lower the temp. Take the desk and couch and go back into the shaft.

Go D, D, D, W, W, N, N, and drop a gem. Go S move E and take statue. Go W, S, E. Enter into the shaft, climb up, go W and drop statue, couch and desk.

Enter shaft again go U, W, W, and close your eyes. Go W then push the knob. Open your eyes and get the gem. Type RUN, go E, S, to get the acid and calcium, then go S, S, get other chemicals. Go N, N, mix the chemicals first and then get the calcium - then call.

Go S, S, take chemicals go N, N, now make a web. Drop the paper then go S, E, enter the shaft. Go D, D, W, W, S drop the calcium. Have a look in the corners and take the gem you find. Go N, N, N, and drop the gem twice.

Go S, and shoot your web at the gem before you get it. Go N and drop the gem. Go S, S, S. Take the corners and go N, E, to get to the roof. Open the mesh and then drop it. Go down duct and get the gem.

Examine the fan before shooting your web at the button five times, then enter fan to take the gem before going D, D, D, D, D. Get octo and hit electro. Go W, read dial (should say 957) go E, U, U, U, U, U, enter fan and go down and feel N before taking gem.

Go S and feel S and take the gem before going N, E, E. Enter the shaft and go D, W, W, N, N, drop the gem seven times. Go S, S, E, and enter the shaft. Go U, U, W, W, W. Type RUN.

Go E, E, enter the shaft, go D, W, W, enter the roof. Enter the duct, then the fan and go D, D, D, D, D, take the newspaper. Open it and take the gem. Go U, U, U, U, U, enter fan. Go D, D, E, E, so you can enter the shaft. Go D, W, W, N, N, drop gem - ask for your score = print MICAH 100% Finished game.

ACTION REPLAY

Kechong Ngugen from Kidbrooke in London wanted to know how to video the games he's playing. You first plug the TV lead from the computer into the antenna in socket on the video. Now select a blank channel on the video and then tune it into 36. The antenna out goes to the TV and you view it on the video channel. Hey Presto videoed games! (You may need a male to female adaptor for the video because not all videos have the correct connector on the back)

CHOP SUEY, **180!** and **DESMONDS DUNGEONS** have all become that bit easier with these tips from Owain Mason of Birmingham. (Once again someone has forgotten to put on their full address so please contact us and we'll send you a free cassette as we've run out of badges. Everyone, please include your full address and postcode, thanx!)

If you keep the joystick in the up-left position in **Chop Suey** you will then get more points and better opponents.

When playing Jammy Jim in **180!** the sequence of darts you need to get for a finish is 180, 180, 51 (treble 17) 50 (bull) and 40 (double top).

During the vault level of **Desmond's Dungeons** if you fail to put the money in the collect go under the money bag to try again.

FREE CASSETTES!

We ain't got no badges left so, for a limited period only, we will send a FREE CASSETTE (from those on the Accessory Shop adverts and updates) to everyone whose tip is used in this and future columns. Now that's got to be an incentive to get thinking and get writing to the Tipster. Show The Tipster what you think of him - bury him in a mound of paper!

Help! ... Help! ... Help! ... Help! ...

Owain Mason needs help on **GUNFIGHTER**, he always seems to be killed by Billy the Goat, so get out your Colt 45's and mosey on down to that ole choral.

K.J. Blakeman is having a hell of a time trying to get around the dungeons in the Thalion game **DRAGONS FLIGHT**. The dungeons seemed to have only a few levels according to him but he's sure there are far more. He also has the crystal blade, magic chainmail and daggers and the such like. He needs any help that he can get so get adventuring and then get writing.

This is my turn for an out and out plea for **MORE TIPS AND HINTS**. It appears that it has happened again, the same happened last year and following my plea you responded incredibly well and I am sure you will do the same again. Any tips, hints and maps that you might have along with complete solutions to adventures or just little snippets will all be used to the greatest effect.

Please send me your tips, hints and solutions to any Atari game or program as my cupboard is massively on the bare side at the moment.

Send all them hints, tips, maps and chocolate bars to this address

THE TIPSTER
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1DR

FRACTAL TRIANGLES

by Richard Welsh

A fractal can best be described as a shape which repeats itself perfectly if one segment of this shape is examined closely. A good example of a fractal which occurs in nature is the fern leaf which has a central stem with numerous "branches" coming from this "trunk". However if one "branch" is inspected then it is found that this "branch" in fact becomes a "trunk" in its own right with numerous "branches" evolving from it. In creating fractals the process can be repeated indefinitely with the shape being broken down each time only to find it is made up of an exact replica of itself.

These shapes have interested mathematicians for years and have developed many a variation on this theme via the Mandlebrot sets - an illustration of which can be seen in the ST FILE of New Atari User Issue 48 but fractals can be simpler. This program does not display as intricate a pattern as the Mandlebrot set, in fact the basic shape is a triangle, however it is still a true fractal.

The idea for the program came from an Equinox program two years ago, showing that fractals could be generated simply by having three reference points, randomly moving half way towards one of these points, plotting that point, and then randomly moving half way to the next point, plotting this and so on until a fractal is formed.

```
EX 1 REM ##################################
TT 2 REM #       FRACTAL TRIANGLES        #
IN 3 REM #       by Richard Welsh         #
HB 4 REM # ------------------------------ #
CC 5 REM # NEW ATARI USER - JUNE '92      #
FC 6 REM ##################################
NM 7 REM
AM 10 GRAPHICS 8:COLOR 1:POKE 710,0:A=158
   :B=10:POKE 752,1
DU 15 ? :? "             FRACTAL  TRIANGLES":
   ? :? "            BY RICHARD WELSH";
AB 20 Q=INT(RND(0)*3)
ZK 30 IF Q=0 THEN Y=158:Z=10
ZT 40 IF Q=1 THEN Y=10:Z=158
BH 50 IF Q=2 THEN Y=310:Z=158
UW 60 GOSUB 80
RX 70 GOTO 20
EQ 80 PLOT (A+Y)/2,(B+Z)/2
PR 90 A=(A+Y)/2:B=(B+Z)/2
YX 100 RETURN
```

HOW IT WORKS

Line 10 sets up the variables and selects graphics mode 8. Note that (158,10), (10,158) and (310,158) are the three reference points of the triangle, with (A,B) representing the current position of the cursor
Line 20 randomly chooses one of the reference points
Lines 30 - 50 instruct the computer what the co-ordinates of this point are and stores them in the two variables Y and Z
Line 60 then initiates a short GOSUB routine to move the cursor half way to this point, which is then plotted
Line 70 then returns to line 20 and the process is repeated again

TYPING IT IN

Type in the basic listing and save a copy in the normal way. Run the program and then make a cup of tea. Unfortunately the program forms the fractal picture by plotting individual pixels and therefore takes about 20 minutes to form a good image. This process can be speeded up by Turbo Basic users replacing line 20 with: 20 Q= RAND(3) and by using an "EXEC" command instead of "GOSUB".

By the time the cuppa has been drunk the fractal should be nearing completion, although this never really occurs for the longer the program runs the better the definition of fractal. Even after a relatively short amount of time it is fascinating to see how the big triangle is made up of three smaller identical triangles, and that each of these is made up of ....

Why don't run the program and find out for yourself?

ChromaCAD MODEL BUILDER 91 and SURFACE SHADER XE 91

Ian Finlayson conducts a full review of the programs previewed last issue

I will start by apologising to those of you who read the initial review of these two programs in the last issue. My initial feelings for these programs have been largely reinforced by a slower, more detailed look so some of what I now have to say will be a repeat. I hope, however, that a more detailed review will help you to decide whether these programs are what you want. At £24.95 each they are not cheap by current Atari 8-bit standards, but unlike most current 8-bit software they are completely new.

GENERAL CAPABILITIES

The two programs complement each other totally. They are two components of a sort of computer aided design (CAD) package - hence the ChromaCAD name presumably. The first, Model Builder 91, is used to create complex three dimensional shapes and to allocate colour and texture codes to the surfaces of the shapes, but it cannot display the finished object. The only graphic displays included in Model Builder are views of the contour lines which make up the object.

Surface Shader XE 91 takes the data produced by Model Builder and displays it. It cannot edit the data, but has the ability to change surface colours and to set up multiple lighting of objects with variable intensity to get three dimensional shading effects, just like a photographer lighting a subject.

Each of the two programs has many more features than this as I will describe later, but it will be easier to understand the details of each program if you have their interrelationship in mind. What is clear is that you really need both programs to achieve anything meaningful. Model builder alone is only capable of displaying the contour maps that define an object, while Surface Shader on its own can only display the few models provided on the data disk; it cannot make any new ones.

DOCUMENTATION

The documentation of both programs is thorough, 136 pages for Model Builder and 69 pages for Surface Shader. The basics are spelt out clearly, in fact if you buy both programs you will find the first 20 pages in each manual is the same. This is the part of the manual that tells you how to use the menu system, how to set and change the orientation of the models on screen, and how to set up several models in view together.

The form of the manuals is like a tutorial, and as the programs are complex it is worth following through the whole sequence in order to gain a full understanding of how everything is used. You may find this a little slow at times but if you try to go straight into the program without following the manual you will very soon be in difficulty. Most of us like to "load and go" with any new software, but these are not the programs to try this method. The way the menus and other features work is not like any other program I am familiar with and is not intuitive, and the manual is not written to be used as a reference, so you may find it difficult to look for help when you get stuck. If you use the manuals the way they are intended, however, they give a very thorough introduction to all the features of the programs.

HARDWARE REQUIRED

These are disk based programs so you will definitely need a disk drive. Model Builder is for any Atari 8-bit computer with over 48K memory - I ran it successfully on a standard 800XL with no problem. For Surface Shader, however, the requirement is greater it needs an 130XE. I have an 800XL with the Rambo XL memory expansion and the standard version of Surface Shader would not display finished images on it but there is also a version of Surface shader for "non-standard 130XE memory-upgraded computers", the NSU version, and this runs without a hitch on my expanded 800XL.

MODEL BUILDER

This is where you design and build up your 3D model. The basic principle of the system is to build up a model in layers, like contour lines. A base line is plotted first and then the vertical offset to the next line is chosen. This offset defines the thickness of the "layer" and can be big if there is little fine detail in that part of the design or small if detailed surface irregularities are to be included. As the second contour is drawn a strip of triangles connecting the new line to the base line is formed. These triangles will be the surface facets of the finished model and their colour (6 available) and shading are defined as you go. As each contour line is completed it is saved

to disk, then the build up of the model continues using the previous contour line as the low line while a new high line is drawn.

The drawing process can be done by positioning a cursor with joystick or keyboard keys, or by calling up a menu that allows x,y coordinates to be typed in. This menu also facilitates the drawing of straight lines, circles, ellipses and arcs. These are the only drawing tools; there are no flip, rotate, cut and paste, bezier curves and such like that you may have seen in drawing packages. There are short cut keystrokes that speed the construction of the side panels, and a trace facility which constructs a new high line directly above the previous one when the side panels are vertical. This drawing process is described in detail in the handbook with examples which show you how to draw solid letters L, i and O (each slightly more complex) and to finish with a coffee mug.

Viewing your work can be done at any stage of the creation process, so you can check as you go to be sure that there are no mistakes. This is important because there is no way to go back into a model to make adjustments unless you peel off the layers that have been created further on and they are then lost and have to be drawn again. There are ten orientation registers which can hold data for different views. The standard view is vertically down onto the x,y plane at the origin (x=0, y=0). The orientation settings that can be set are pitch, yaw, roll, distance of eye point from the plane, offset in x,y and z directions and angle of view. Angle of view effectively provides a zoom function where a small angle of view is equivalent to a high power zoom and a large angle is the same as a wide angle lens.

When you view your work part way through drawing a contour line only the current strip of construction is shown (that is the previous contour and the one currently being drawn) so you can see exactly where you are. When you view the whole model the display shows all the contour lines. This is alright for simple models, but with complex models it can be quite difficult to appreciate what has been drawn and angle of view must be chosen carefully to make it as clear as possible.

SURFACE SHADER

Surface Shader is easier to understand than Model Builder. All the hard work creating your model has already ben done at this stage. What you can now do is use the same orientation registers as in Model Builder to view your work as a "solid". The program takes the data from disk and works out what to display and what to leave out and also the colour and shading effects for each displayed surface. This can take a bit of time if the model is complicated - the head on the data disk provided with the program takes about half an hour to draw.

There are a large number of options available in displaying a model after you have chosen its orientation. First there is lighting. Each model can be lit by up to three lights each of which can be orientated separately in pitch and yaw. Each light can also be set in intensity and this brightness can be different for each of the 6 surface paint colours that were available for use in Model Builder. So you should be able to get some very unusual effects, but in the first instance it will be easiest to set all light intensities to 9 (maximum) and treat them like normal flood lights.

There are 4 modes that can be used to display your models. Modes 1 and 2 are medium resolution multi-colour modes, Mode 3 is high resolution 2 colour (picture and border) and mode 4 is two colour stereo imaging. Combined with this is the ability to decide how many screens are set up to improve the evenness of model shading. Up to 8 screens can be used. They are all set up in memory with each picture identical in outline, but with slightly different surface shading. When these screens are displayed in sequence very quickly the effect is to give a



A composite photo pieced together from separate shots of the entire image which can be displayed in segments for better resolution

shading effect that is finer than can be shown on one screen. When viewed by eye there is a noticeable flicker as the screens are flipped, but for photography an exposure of three quarters of a second allows all the screens to blend.

To overcome the shortcomings of a rather low resolution TV picture there are facilities for splitting pictures up into pieces (up to 9 x 9) which can then be photographed and the resulting prints stuck together to form one large high resolution image. But remember 9 x 9 is 81 images - at half an hour each that is about 40 hours! 3 x 3 is a more realistic concept. There is also a possibility to automatically photograph a series of screens if your camera can be triggered by an electric pulse sent out through one of the contacts in the joystick port. My camera does not have this facility, but it would certainly be useful to leave the system running taking photos through the night!

FINAL JUDGEMENT

These two programs are very powerful as 8-bit programs go. In fact I think the authors have tried to do too much. If you start to build complex models the time taken to generate an image gets unacceptably long, and there is no way of saving the completed picture except photographically - the next time you wish to display it you will have to start again from the data saved to disk. The introduction says that the programs have been written with portability in mind so they should become available for more powerful computers, but probably at much higher cost.

The price of this software seems a bit high remembering that you really need both programs though a great deal of effort has gone in to create these large programs in compact code suitable for the 64K 8-bit machine and they are presented well. A bundled price of about £35 for the two would be value for money. I suspect that many Atari users will confirm the "games machine" image of the Atari by spending their money on lighter programs, but if you have a serious, enquiring mind, an enthusiasm for the graphic arts and a fair measure of patience then these programs will keep you absorbed for a good deal of time and you can create your own "sculptures" without clay or kiln.

The ChromaCAD system is available in the UK from Gralin International - see their adverts in New Atari User. Prices are currently £24.95 for each of the two modules

HAVE A BLAST ... and collect £200

This month: A compendium for baud walkers, a brace of scintillating space thrashes, and a rendition of an evergreen property game. Edmund Blake gets it all for the price of the disks ...

Serious stuff last issue, right? This time, I'm going to melt down a joystick or two playing some of the marvellous blasts available from the public domain.

You won't find a sequel to the latest from US Gold in the freebie grab bag of course, but you will find an enormous collection of arcade lookalikes - the chart-toppers of yesteryear. See, it's like this. First time out with a new assembler, and a cracking copy of Galaxians, Frogger, PacMan or some such rolls off the electronic production line. No-one's actually going to buy a game originally popular ten years ago, but the programmer gets valuable coding practice and you get for free what original 8-bitters paid large amounts of hard cash for.

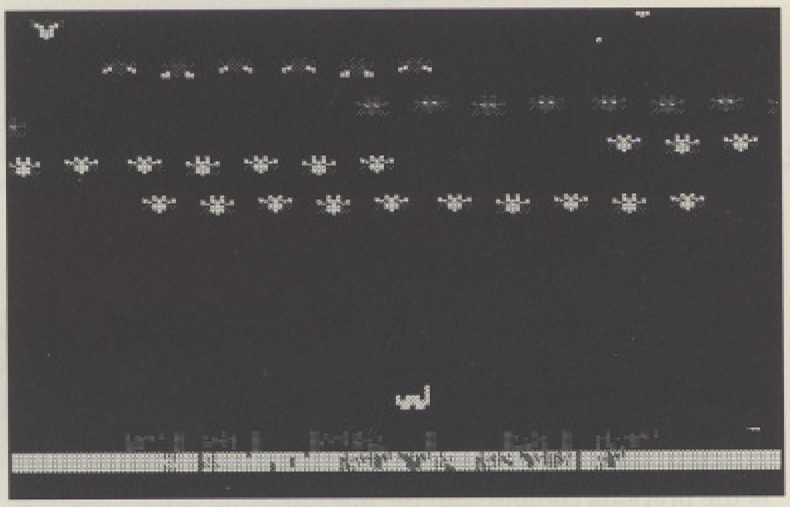
Don't think classic means dull either. PacMan and Space Invader clones will keep a sweaty palm around your joystick for a long time to come ...

All the games featured here come to you as collections. That is, as well as the featured game, each of the disks contain several other fun games, some of which will be reviewed in later columns.

GALACTIC

If Invaders is the Grandfather of all space shoot-em-ups, Galaxians must be the Great-Uncle once removed. The frantically-falling fiends have enthralled joystick wielders since the days when Atari 400 flattened keyboards were thought to be the last word in hi-tech.

Galaxians, however, always had the greater staying power.



Whereas the repetitive pincer snapping of Invaders invariably dulled by the 35th level, the seemingly endless swirls and swoops of the Galaxians invasion force kept many a backside on the edge of a chair until its owner's last laser cannon melted away back into the silicon.

Now you can relive the glory days with Galactic, a furious rendition of the great space show-down. The program opens with a gang of the extra-terrestrial meanies gadding about a scrolling star field. You - in time honoured fashion - take up position at the foot of the screen, alongside two spare laser cannons, a high score read-out, level indicator and your current score. Play starts by plugging a joystick into port 1 and brushing a finger tip over the Start key. From then on in, wave after wave of frenzied xenophobes hurtle downwards to your pitiful positions - you won't know what's hit you! The first five levels or so are standard stuff, but then the alien hoards get angry. And when they get angry, they get mean - watch out.

Galactic is one of the best Galaxians clones around. Smooth graphics and good spot effects combine to produce a thrash no sensation seeker should be without.

ALIEN AMBUSH

Staying with the space theme, Alien Ambush consists of yet more slimy green off-worlds careering down the screen in an attempt to part you from your lifeblood. Difference is, however, in this game, there's only one alien to start with!

One big fat alien - can't be very difficult, right? Well this one's got a surprise up its slimy green sleeve. Hit it, and rather than dying, the fiendish foe splits into two super-fast, potentially fatal aliens whizzing around the playfield. Now you've got to blast two of 'em!

The action continues in a similar vein until you've managed to clear four screens' worth of aliens, then the fun really begins. Successive aliens split into four, then the speed increases,

then there's another split, then ... and so on, until it's all you can do to switch to autofire, grit your teeth and hang on for dear life!

Author Peter Fokos' fast and furious vertical scroller first appeared in 1982, and it's every bit as good ten years on. Alien animation as smooth as Emma Freud's thigh, overlays a simple but utterly addictive idea which will have you hammering on the fire button just one more time in an effort to increase your high score.

THE PROPERTY GAME ... OR GO DIRECTLY TO JAIL

Game play isn't all about blasting aliens of course, board and card games have long been firm favourites of programmers and players alike, and there are silicon renditions of many of the most popular games available for the Atari Classic.

Perhaps the most enduring board game of all time is Parker Brothers' Monopoly (and if it needs a description, we haven't lived on the same planet for the last few decades ...). Look behind the unwanted lamp-shades and broken fake Christmas trees in understairs cupboards up and down the land, and you're certain to see the familiar red striped box and flutter of brightly coloured funny-money. One or two commercial attempts to provide an 8-bit version have faded into obscurity over the years, but who needs them when there's an excellent PD offering?

Monopoly is a comprehensive version of the arch board game. Up to four players can join in the fun, but for the loners amongst you, the author has sensibly adapted three of the 'players' to computer control, so there's always three other eager wheeler-dealers just when you feel like a session.

The game features an absolutely indispensable save game option - some of those sessions can last an awful long time - and most of the standard procedures have been implemented. Occasionally, however, the computer buys houses 'unevenly', which is technically against the rules. The 'bug' is well documented in the on-screen manual (which is excellent, and can be directed to a printer if you have one ...), and to compensate, you're allowed to buy houses unevenly too!

One problem, for me at least, is the screen display. Sure, there's heaps of information crammed in there, but where's the graphical representation of the board?

I suspect that after coding all the possible strategies and so on, there simply wasn't enough room (and that's the documentation's explanation for the underhand house buying too ...). Instead, there's a series of codes arranged in an oblong, each representing a property. The centre of the oblong is divided up into Chance, Community Chest, player prompt areas and so on. It's all very nice once you become accustomed to it, but rather a shock at first.

'Course, a board game is all about how it plays, and Monopoly - at least, your Classic Atari, plays a mean board game. Two or three revolutions of the board, and the other players are all frantically building houses and trying to bankrupt or otherwise eject you from the game.

Just the thing for those long winter evenings - or boring summer holidays.

There are a number of other board games in the public domain, some with excellent graphics, which we'll cover in due course, meanwhile check the catalogue similar games.

DOIN' THE BAUD WALK

The Ark's sysop James Bastable is a man with a mission: to provide concentrated helpings of Classic comms before the entire ether-based 8-bit scene evaporates. Determined to offer a board aimed exclusively at the Classics, James acquired a hard drive for his 130XE and wrote the necessary BB software. The result is the best board you'll find this side of an on-line LED. Absolutely the best. (It's now called The City - 021 321 1610. 8n1 24 hours).

But what's all this got to do with public domain? Well, the man Bastable carries a torch for all things communications and Atari Classic, and he's put together a compendium disk of good comms software, tips and advice, and instructions on how to build a home-brew RS232 interface. The disk is called The Ark Comms.

Boot it, and you're presented with a menu front-end for the on-disk text files. There's a description of how to get split baud rates from third-party serial interfaces, details of the RS232 interface you can build at home, and instructions for the popular AMODEM terminal programs (included on the disk), as well as an introduction explaining what the disk is all about.

Accompanying the text files is a neat little 850 emulator for Datatari owners, a copy of both AMODEM4B and AMODEM7B terminal programs, and patches providing the P:R: Connection with split baud rates from machine code. Both the AMODEMs have been patched with Geoff McHugh's code fragment enabling them to support the previously unavailable 1200/75 baud rate with any RS232 interface.

AMODEM4B is somewhat primitive, featuring archaic text prompts, but it does provide XMODEM file transfer (albeit at a snail's pace ...), ASCII text capture and four baud rates: 300, 600, 1200, and 1200/75. It's written in BASIC, which is no bad thing when skilfully used (The City is written in BASIC), but in this incarnation, is just a little slow for comfort.

AMODEM7B is a much better bet. The program offers an excellent menu-based front-end, and heaps of on-line sophistication in the form of macros, menus and on-line help. It's a pleasure to use.

As well as the terminal software, there are the blueprints for building an RS232, although not exactly written with the electronics novice in mind, the device works like a dream. Watch out for a feature in NAU detailing the project soon.

All in all, The Ark Comms is a perfect introduction to Classic communications, and provides everything except the modem for getting on line.-

HOW TO GET THEM!

All of the programs featured in the column are available from the Page 6 8-bit PD library. Each has a unique reference code as a well as a distinct name, but it's the reference code you should use when ordering or making enquiries. Contact Page 6 if you don't have a copy of the PD catalogue or Accessory Shop leaflets, or to check system requirements for the programs. The disks referred to in this column are:

Disk #57 - ML ACTION! (Galactic)
Disk #68 - THE FINAL FRONTIER (Alien Ambush)
Disk #145 - MONOPOLY
DS #19 - THE ARK COMMS

Prices are £2.95 per disk, or £2.50 each for ten or more Order from Page 6, PO Box 54, Stafford ST16 1DR. Telephone 0785 213928. FAX 0785 54355. (Credit card orders accepted)

A MIXED BAG FROM APX

given the once over by Paul Rixon

1 PUZZLER

Who remembers those sliding tile picture puzzles they always used to give away at the fair? Well, Antic's PUZZLER is a combination of a classic tile puzzle plus a neat demonstration of what you can do with an Atari GTIA graphics chip. Don't turn the page yet though, as this one seems to excel where similar conversions have been lacking.

Of course the basic aim is to rearrange the pieces of a picture that's been scrambled into a rather unsightly mess, so that the original image is restored to its former glory. You can achieve this by pushing the joystick to manoeuvre tiles up, down and sideways into the one available gap. It may feel a bit strange at first but you'll soon get used to the logic. There's a clock at the base of the screen to keep you on your toes, though it seems that you can battle on for as long as you like to complete the puzzle.

The Option key provides varying levels of difficulty by altering the number of squares the picture is divided into. The standard setting is a reasonably manageable grid of 32 squares but if you wish you can try an exceedingly tricky 64 or a highly optimistic 100. Changing the grid size always restores the picture to its initial state, unlike the Start key which scrambles the squares by 128 moves with every press!

There are seventeen ready-made pictures on the disk for you to load into the puzzle. Some are compressed Micro-illustrator files whilst others are stored in the standard Micropainter format. If you have these utilities (or others such as Atari Artist and its PD equivalents), you can easily load in your own artistic creations. Puzzler can handle GTIA pictures (the Select key toggles between graphics modes 9, 10 and 11) as well as those in the more common formats mentioned above. In case you should want to fiddle with the colour registers, this function is also provided!

It's not easy to get enthusiastic about such an age-old game concept, but this version is probably among the better examples of it type. If the genuine plastic articles are anything to judge by, the puzzle should certainly keep younger players occupied for more than a minute or two. Since you can import your own computer artwork, in theory it's possible to create an infinite variety of new challenges.

nfinvariety of new challenges.

2 MEMOREASE+

No matter what the subject - day of the week, time of the appointment or name of the person introduced at the party - we all seem to forget things with unfortunate regularity. Could it be due to tiredness, lack of interest, or just human nature? If the author's claims are correct, MEMOREASE is the key to forgetting your memory problems forever!

The program is based on the 'gradual recall' theory pioneered by a professor from the University of Massachusetts. It aims to develop the voice-ear-brain connection that boosts learning and retention over several stages of partial recollection. To illustrate the principal, you might begin to memorise a poem by reading the text out loud. Certain letters would then be removed from the script (it might look odd, but you could still guess most of the words) and you'd be asked to repeat the recital. The process of erasing letters would continue until eventually you were able to remember the entire poem without reference to the text. This method of learning is apparently more effective than just reading the subject matter over and over, since with each repetition you are unknowingly forced to retain more of the information.

By now the basic functions of Memorease will be fairly obvious. The program acts as the 'script' in the example above and enables you to alter certain parameters to match your pace of learning. It operates in several modes: Full-Page mode allows you to memorise speeches, poems, facts and prose of all kinds whilst Split-Page mode invites you to learn vocabulary, definitions, comparative language statements and suchlike. The incremental removal of letters is controlled entirely by the user, who can also peek at the underlying text if stuck on a particular word. Split-Page Quiz mode is an electronic flash-card technique that lets you review information in various ways. You can blank either the upper or lower screen portions, guess the answers and score the result. A simple editor is provided so you can enter up to twenty pages of full or split-screen text for use in the other exercises. Meanwhile, the screen colour can be adjusted to suit your personal preference.

Memorease is very professionally presented. The disk-based documentation is guaranteed to exhaust your supplies of listing paper if you decide to print it out, but it's well worth the read. Now what was that witty ending comment I had lined up?...

PROGRAMS REVIEWED

- ✔ PUZZLER
- ✔ MEMOREASE+
- ✔ SPEEDREAD+
- ✔ WEAKON

Published by ANTIC Software
Price - £5 each
Disk only
Available from Gralin International

3 SPEEDREAD+

Antic claim this software will teach you to read faster than ever before!

Why should you want to read fast? The manual explains that speed reading is a 'wonderfully rewarding' experience. It's less tiring, expands comprehension and saves time. The fast reader is able to concentrate on thought streams and ideas, rather than words and syllables, so reading is much more enjoyable. But aren't most people good at reading? Well, it seems not! The 'read aloud' method of teaching children basic skills leads to bad habits which are hard to shake off. 'Vocalizing' is the habit of moving your lips, tongue or throat muscles when you read - this way you progress no faster than speaking aloud. 'Sub-Vocalising' means pronouncing words in your mind as you read them, again causing a slow rate of progress. Typists, proof-readers and computer programmers are particularly afflicted! Other common faults are 'Regressing' (re-reading phrases and jumping between different places on a page) and 'Poor Peripheral Vision' - the inability to comprehend several words without focusing separately on each. SPEEDREAD is intended to help you overcome these problems.

Normally an instrument called a tachistoscope is used to improve reading speed. It works by flashing up words and phrases so that the eye will instantly recognise them. Speedread relies on a similar principal, and its basic operation is very simple. After the program has loaded there are six steps to setting up an exercise. First you choose an appropriate text file for reading practice - three stories are included though you can use any ASCII files of about 5K in length (longer text can be chained together over several files). Next you select the screen colour, the type of operation - either single, double, random or column phrase mode - and the phrase width from 8 to 38 characters. Finally you specify the flash rate and start the whole thing running. The program displays the words of the chosen passage, in the format of the current display mode and at the speed set by you (you can use the joystick to make further adjustments). By following the tutorials contained in the documentation, you should gradually improve your skills.

Speedread contains many more options than those described above. The superb quality of the documentation suggests the author has a sound knowledge of the subject. This inspires my confidence in the ability of the package to fulfil its stated objective.

4 WEAKON

If you were employed as a sub-atomic particle physicist during the early 1980s, you should know all about the search for the elusive Weakons! Weakons are, apparently, massive elementary particles thought to be the carriers of a weak nuclear force and they belong to a group known as intermediate vector bosons. Their very presence would substantiate the 'electroweak' theory, a vital link in the chain towards the grand unification of all nature's forces. As you might well have guessed I haven't a clue what this is all about but if anyone's got the latest developments, please DON'T write in and let us know!!

WEAKON - the game - is said to have been inspired by the scientific theories mentioned above. However, despite the impressive explanation it turns out to be a fairly rudimentary shoot 'em up - the objective is simply to capture as many Weakons as possible and deliver them to a power generator. Obviously there are lots of nasty things out to get you - mesons, gamma photons and ionizing radiation clouds are all fatal if you collide with them. These dangerous particles generally begin life at the right hand side of the screen and zoom across to the left. Commanding your tiny spaceship you must either dodge them or destroy them with laser fire. Mesons are particularly difficult to avoid, as they're attracted to your craft and are capable of doubling back to attack from the opposite direction.

Eventually a Weakon appears and while you continue to fend off the aggressive forces, you should dock to gain a valuable points bonus. Only trouble is, the Weakon increases your accelerator energy so the whole game starts to get faster! There are ten levels in all although you'll need to be good if you're going to survive them all. You earn points for the successful destruction of each alien particle, so in the early stages it's probably best to ignore the Weakons and build up a score that will gain you the necessary reserve of extra lives.

I'm afraid I've got to conclude with the opinion that Weakon is somewhat aptly named - as a shoot 'em up, it's rather a weak attempt. To be fair it's a very old game and was probably above average quality for its time. The graphics and sound reflect its year of release, and I feel I can't recommend it - especially at the quoted asking price.

PONDERING ABOUT MAX'S

Ed Hall checks out a quirky, somewhat different and *brand new* game from the USA

Just before the demise of ANTIC magazine, I noticed a couple of ads for a new game. They were small, black-and-white jobs from some hitherto unknown company inviting me to send them $22.95. Yawn.

But wait a minute ... there was something odd about these ads. There were no boxes filled with squinty text, and no crazed stew of idiotic fonts. Obviously this was not the work of some goofball high on DTP. By god, the conclusion was unmistakable. These ads had originality.

Thus began my acquaintance with one of the quirkiest pieces of software I have ever encountered. Even the names are loopy. "Change In Heat" is the company, and "Pondering About Max's" is the game. Except it's not one game but three - plus a demo - all crowded onto a single disk. The games are entitled The Dream, P.A.M., and Bar Room Brawl. Can you guess what P.A.M. stands for?

FIGURING OUT MAX

The game comes in a small folder resembling a record album. The similarity is not coincidental; inside you'll find a photo of a record, and musical credits to pop star Howard Jones, whose tunes are featured in the game. Open the folder and you'll discover a booklet of "liner notes." They include instructions, and a mock article about a sporting contest which sets the game's premise. The prose is so inflated and satirical that you won't make much sense of it at first, but embedded in it are clues and references to the three games that make up Pondering About Max's.

Now, just peeking out from behind the booklet is a tab. Give it a pull and out pops an envelope from a hidden pocket. Inside the envelope is a disk which is not your standard square of black plastic. It sports a custom jacket made of cardboard with graphics on one side and game credits on the other. The overused word "unique" comes to mind, but for once it is entirely appropriate; there is no other disk for Atari computers like this one.

I was so intrigued by this elaborate packaging that I just had to write the company. From them, I learned that the entire package was assembled by hand at a university typography lab. According to game designer Mark Peters, this infatuation with details arose from "the desire to create a package that, together with the game, would become a work of art with lasting appeal ..."

Consequently, no surface has been left untouched. The pull-tab, the envelope, the disk jacket, everything has been enlisted to reflect some aspect of the game. After a while it becomes clear that the package itself is part of the game.

BOOTING AN ART OBJECT

On side one we have The Dream and P.A.M., two similar platform games with excellent graphics. The screens are bright, attractive, and embellished with many humorous touches. You can get a peak at them by waiting until the demo routines kick in. Altogether, 12 are shown; there may be more.

On side two the graphics and the gameplay are completely different, and we're back to quirky. Bar Room Brawl offers you the chance to be a Burt Reynolds clone. Tangle with "bearded stuntman" in a number of bars. Throw bottles, break chairs, smash TV sets. Whoopee!

In Finis, the most original part of Pondering About Max's, you'll choose a song on the jukebox and look for a dance partner. Wait a minute! Isn't that the gorgeous Barb Vidal waiting to congratulate the winner of these contests?

Barb Vidal?

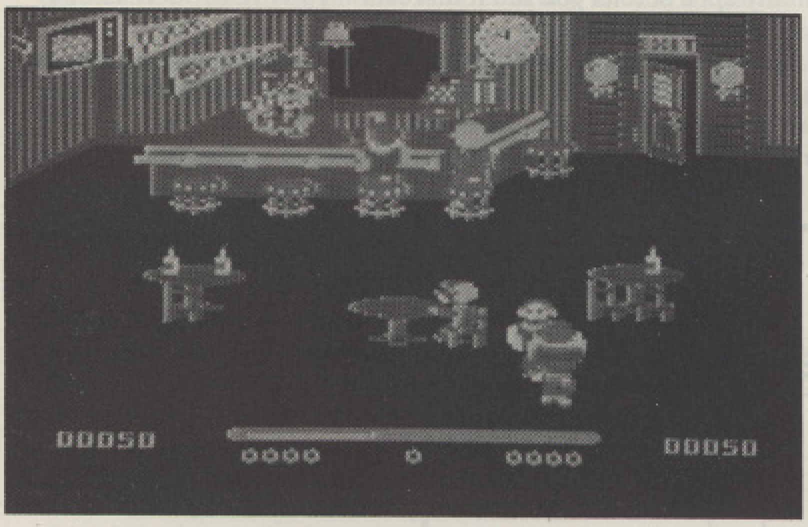
Yes, Pondering About Max's does have a story line of sorts, and Finis, a short routine which employs an amusing cinematic technique, is an attempt to wrap things up.

I KNOW IT'S ART, BUT...

Despite my obvious liking for it, Pondering About Max's is not perfect. The gameplay is very tough - perhaps too tough - especially in The Dream and P.A.M. The graphics are good but not state-of-the-art. The sparse sound effects and snippets of music are adequate, but not exceptional. On the other hand, there are many fine artistic and humorous touches you'll not find in other 8-bit games.

The real beauty of Pondering About Max's (argues Mark Peters) is "in the tiny details that can only be discovered after months of play - I mean this literally. From personal experience I have found that it's possible to come back to the game





If you want to get quirky, write to:

Change In Heat
12 Bellavista Place
Iowa City, IA
USA 52245

for your copy of Pondering About Max's. Enclose an International Money Order (see prices right) or dollar bills - a lot more risky but a lot cheaper, ask your bank!

months later and find completely new ways of advancing, and uncover animated routines never seen before (or in my case routines I had forgotten having programmed.) The symbols and themes behind the trilogy also reveal themselves with time - clues are woven into the protagonists' dreams and the packaging itself. The lyrics to the Howard Jones songs chosen also shed light ..."

Pondering About Max's doesn't come from a big company. It's the sort of offbeat product that could only come from a small operation, one that could take the time to allow its artistic vision to include not just the programs themselves, but also the packaging and the advertising. Yet it's not an amateurish product; it's a professionally executed piece of software right down to the loading screens. It's the sort of game that could achieve a cult status.

GET QUIRKY

The unexpected demand for Pondering About Max's has outstripped the production capacity of Change In Heat. They are now offering a plain vanilla version (unlabelled disk plus instruction booklet) for $12.95. They still have a limited number with the original packaging, priced at $22.95. A $10 refund will be sent to those who order the fancy version after they've run out. There are no additional charges for postage and handling, even for overseas orders.

TALES OF ADVENTURE

ENCHANTER

Before you start playing Enchanter you will need to change your adventuring ego's image. No longer is it to be bedraggled and frightened, with a sword and rusty lantern, wearing odd bits of armour and trying to carry an ill-assorted pile of junk and valuables. Now it is to become an Enchanter - albeit a very lowly and inexperienced novice, but still a magician with the ability to cast spells to bend objects, either animate or inanimate, to its will.

So abandon the sword and lantern and pick up your personal spell book. Give yourself a long flowing robe decorated with astrological signs and mystic runes. A long, grey, pointed beard is a must along with fairly long grey hair and you should don a tall pointed magicians hat or if you prefer a deeply hooded cowl.

You are no longer bedraggled but still apprehensive of what lies in wait for you and of course still trying to carry that ill-assorted pile of those might-come-in-useful objects. Instead of trying to kill anything that moves your intention now is to zap it with a spell. Unfortunately, you are either one of the latest intake of novices or you have not been very diligent in you studies, as you have only four weak spells written into your book and only one of these have you managed to commit fully to memory. This seems to suit the purpose of your elders as they deliberately send you, because of your weakness and inexperience, against the mighty, all-powerful, and definitely evil Warlock, Krill. And so Enchanter begins, at an anxious and worried meeting of the Circle of Enchanters.

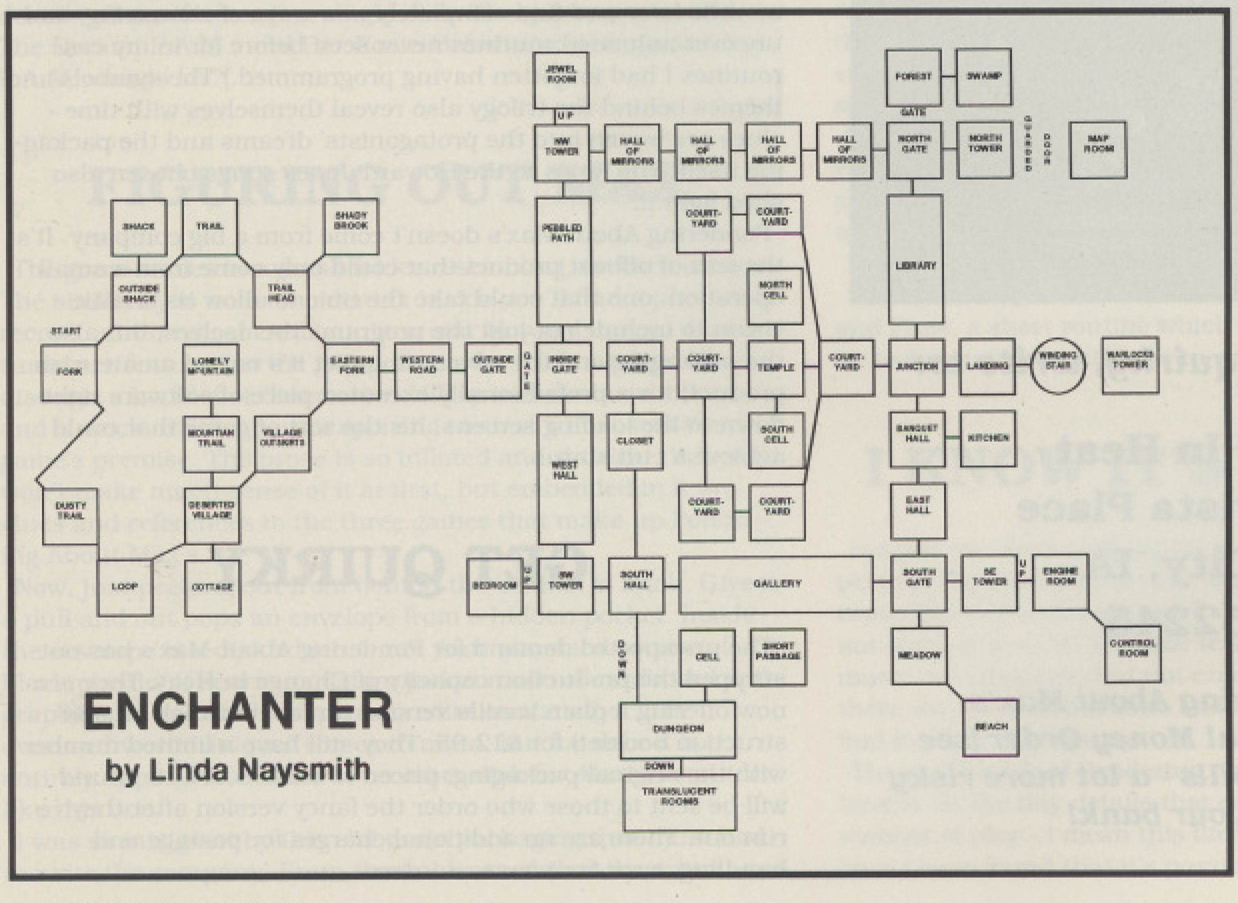
There has been a dissolution and weakening of the powers of the Circle and they feel it is attributable to the warlock Krill. Belboz, the leader of the circle, reveals an ancient document which portends evil days much like these. It advises that to send a powerful Enchanter against Krill would be disastrous. What is needed is a novice Enchanter with only a few simple spells in his book, one that Krill would disregard as being of no consequence.

You are summoned by Belboz who then gives you your quest - to seek out the evil warlock Krill, explore the castle he has overthrown and learn his secrets and finally to destroy his vast evil. The circle then rises and intones a richly woven spell. There is a surge of power and you are sent ......

You find yourself at a fork in the road at dawn, the road splits to circle the base of the Lonely Mountain to the east. With nothing but your spell book under your arm, you start to explore around the base of the mountain. You find the basic requirements needed to satisfy hunger and thirst and a battered and useless lantern if you MUST carry one. An old crone you meet in the abandoned village gives you the first of the many spell scrolls you must discover if you are to successfully complete your quest.

Now you are ready to enter the castle, as you pass through the gate you feel your mind being probed and then discarded as uninteresting - perhaps the Circles decision to send a novice Enchanter was a wise one after all. During your exploration around the seemingly deserted castle you find, at the top of the north western tower, a beautifully jewelled ornamental egg which contains a spell scroll, but whichever way you open it, the mechanism in the egg shreds the scroll into unreadable scraps of paper.

You find a long hall of mirrors which somehow do not reflect the contents of the room but show another world of vast underground labyrinths. Occasionally a shadow of your former self will appear, clutching an elfin sword and a lantern, looking hopelessly lost and continuously examining a map. Continue east to the North Gate, in the forest beyond this gate you'll find something you can zap. East from the gate and you'll arrive at the most heavily guarded door in the world of adventuring. It has



ENCHANTER
by Linda Naysmith

everything, flame throwing gargoyles, five headed monsters, uncountable locks and chains, you name it and it seems to be there - complete with a floating sign saying 'don't bother' - so you know that somehow, you'll have to get that door open. Disheartened, you go back to the North Gate and then south into the Library. Here you sense danger approaching in the form of heavy footfalls so you daren't linger. The Library has been ransacked and destroyed but you have just enough time to grab the one surviving book and hot-foot it to safety. The book has been partially destroyed but you can still read two chapters which prove to be very interesting. As you cannot go further south, retrace your steps back to the main gate and from there go south to the south western tower. Climb the stairs to the bedroom and if you are feeling tired, sleep in the comfortable bed. Your dreams are worth noting as they may lead you to further discoveries.

The following morning finds you wandering through the portrait gallery, where all the paintings eyes seem to follow you as you pass. It may be worth while dousing your light for a while. North from the south hall, in a closet, is a large jewelled box which is intricately and magically tied with a thin rope. It has too many knots to untie and your spells are too weak against its magic - what you could do with is a sharp knife.

Descend the damp stairs from the south hall and you discover the dungeons. One of the cells must have held a relative of the Count of Monte Cristo as he obviously had the same idea of escape. One of the walls in the dungeon is crumbling and has revealed a dark passage descending to a complex called the translucent rooms, these are referred to in one of the legends in the dusty book. It looks at first to be a maze, but it isn't, and there is even a map of it lying around somewhere if you can find it.

If, by now, you have blundered into the temple, you will know that there is a fate worse than death waiting for you in there. Yes - you become a sacrificial victim, a dark robed figure plunges a sacrificial dagger into your chest as you lie prone on the altar. But if you can find a way to survive the sacrifice then the dagger may be sharp enough to solve the problem of the box. Inside the box is a spell which will allow you to wander around the castle at your leisure, unhindered by patrolling guards. This will allow you to investigate the library more thoroughly and the area to the south of it.

East from the gallery is the South Gate, which opens onto a beach. Climb the stairs up the tower to the engine room. The machine in here bears a resemblance to the other legend in the dusty book and you can also see something interesting in the room at the other side of the machine. You can dodge the machine to get in there but you cannot get back. You need help, something that comes complete with its own armour. It is normally very slow moving but with a bit of zapping, it can be made to fairly zip along.

Now you'll need to tackle THAT door, but not on your own, as you'll again need help, this time from an expert door opener who is also a bit of an adventurer. You should have the means to bring him to your side of the mirrors but don't forget that this experience will give the poor chap a terrible fright. Once you have calmed him down, he will then cast an acquisitive eye over your possessions. Lead him to the guarded door and ask him to open it. Clever thinking that - let him get skewered and burnt and bitten and stabbed - why not?

If the adventurer becomes too much of a nuisance after he has helped you then you could always turn him into a frog, but that does seem a bit ungrateful.

Behind the door is the means to solve the puzzle of the translucent rooms, but beware, to fail means the end of everything as you know it. To successfully solve this puzzle will give you the power to defeat Krill.

The Terror and the scroll of power are trapped together in the translucent rooms, the map and the pencil are the means to open a way to the scroll but this also opens an escape route for the Terror, and it rushes for freedom. You must not let it escape, but once you block its exit it will rush back to the scroll and destroy you. The trick is to let the Terror run for freedom long enough for you to get the scroll and then block the exit. Then, before it can get back to the scroll, trap it in another translucent room. All you have to do then is to get out of there yourself.

This done, you should have enough magic spells of sufficient strength to dispel the magic of the winding stair, penetrate Krills workshop and to defeat Krill in a desperate duel of magic and sorcery.

The Circle are delighted with your success and reward you with a full and paid up membership of the Circle of Enchanters. Now you have served your apprenticeship and are a full blooded Sorcerer, which brings us to our next adventure ....

by

Linda Naysmith

ENCHANTER HINTS

1. How do you get the scroll from the egg intact? - LLO RCS DED DER HSF BER KNE HTD NAG GEN EPO
2. How do you survive the sacrifice? - FLE SOO MZO
3. How to avoid capture by guards? - FLE SRO BLE M
4. Can't open jewelled box - RE GGA DLA ICI FIR CAS HTI WEP ORN IHT TUC
5. Lost all possessions when sacrificed - LLE CHT UOS EHT NIE RAY EHT
6. Can't find Vaxum spell - D EBE HTN IGN IPE ELS YRT
7. Can't open Castle gate - E GAL LIV NIE GAT TOC OTN IOG
8. No food or water - K OOR BYD AHS TAG UJL LIF ,KC AHS OTN IOG
9. Can't find ozmoo spell - T HGI LTU OHT IWY REL LAG OTN IOG
10. Dragon kills you - ELO HOT NIH CAE R,Y RAR BIL NIS KCA RTT ARE NIM AXE
11. Can't get past engine room - TIO DOT ELT RUT EHT EDA USR EP, T'N OD
12. Turtle too slow - E LTR UTX EXE
13. Can't get into short passage - LL AWL LEC NOI TTI FFA RGD AER
14. Turtle uninterested - WNO GDN ALL ORC STE GES OGE LTR UTY ASM OOR ENI GNE OTO G.E MWO LLO FEL TRU TYA S,E LTR UTL OFT IN
15. Can't get adventurer out of mirror - MIH MUX AVN EHT MIH AIM FIZ
16. Monster kills you - DAP YLI LRE DNU KOO LSG ORF LOF TIN PMA WSO TOG
17. Adventurer not interested - E LBA ULA VGN IHT EMO SYR RAC
18. Can't open guarded door - ROO DNE POR ERU TNE VDA YAS ROO DOT UOY WOL LOF OTR ERU TNE VDA TEG
19. Can't get scroll from terror - BOT KMO RFE NIL WAR DKO TOG VOT MMO RFE NIL ESA RER OTB MOR FEN ILE SAR ELL ORC STE G)E CIW T(W SOG POT FMO RFE NIL WAR DFL ESX EXE FOT OG
20. Can't climb winding stair - RI ATS NOD ACL UKT SAC
21. Where do you use Filfre spell? - N UFR OFN IAT NOU MYL ENO LFO POT NOE RFL IFT SAC

The clues are 'coded' backwards, just read them from right to left, pulling out complete words. Because of some of the weirdly named spells in Enchanter, some words may not appear to make sense but all the answers are there!

WHERE ARE THEY NOW? ... IS THERE ANYBODY STILL THERE?

Now that the spark is back, Mark Hutchinson discovers some old friends as he looks through long forgotten correspondence

Well, I finally got back into print again after all this time. I was quite pleased with the article, and the old adage about a problem shared scores again. I just wonder how many readers can say "Hey, that's what happened to me". Unfortunately many will have reached the point where they will not be reading the magazine any more, or will they? In fact, where are all the old names, are they still with us?

With this thought in mind, I decided to restore data from my archives; a technical term for reminiscing. Actually, what prompted this article was the fact that I spotted two names that brought back memories, and when I checked up, I found that they had written to me in the dim and distant past. But first I must digress to say a few words to a friend. "Hi Michael, wish your dad a speedy recovery and tell him not to take any stick from a certain member of the PAF team!"

Back to business. You may have read an article from Ann O'Driscoll last issue and several issues before that. Could it really have been as long ago as December 1988 that Ann wrote to me from Rahenny to say she had recently bought a 130XE and would like some help? If so, are you still playing 'Doggies' and 'Haunted', Ann?

SOME ARE NOW FAMOUS!

P.J. from Shefford must be the same Paul Rixon, now famed software reviewer, who as far back as 1985 wrote software reviews for the late lamented BAUD magazine, edited by Frankie Smyth (with assistance from my printer and myself). Ah, halcyon days; eh, Paul? I also found a letter dated 1983 from some guy called Ellingham and one from our antipodean friend Garry Francis (remember him?). I think the most letters though came from Stan Fallaize (hi Stan) closely followed by 'Mitch' Mitchum of Solihull.

While perusing these missives some questions came to mind. Is Dave Hitchens from Stalmine the same David who wrote Ballbender? Is Steven Wilds from Mallorca still running ANGLO? Is Jacqueline Wilkinson, B.A. (Hons) still using an ATARI in her business? Whatever happened to Cliff Winship since he moved house?

YOU COULD BE NEXT

Looking through the rest of my correspondence I stop to wonder; is Cherry Boulain still falling into black holes? Do Paul and Lucia Clark from Italy still use that fascinating, hand made, writing paper? Did Joe Debney ever contact Belfast ambulance control? Did William Benbow (and Arthur Morris) ever write another book (we have a pub here named after your ancestor)? Is David Gatcum, a reader from way back to issue 1, reading this issue?

I could go on at length about the correspondence I have had over the years, the people I have met at the computer shows and in shops, but I will just mention one person that sums it all up. I will call this person 'X' and tell you the tale of someone, not really all that long ago, who bought a computer. But first, another digression. I would dearly have loved to answer every letter sent to me but two things stopped me. One; some of the letters never arrived. Two; I have always stated that those with an SAE would be answered as promptly and as fully as I could: for the rest, a lot (but not all) of the letters would be answered through the magazine. Anyway, ever onward.

HEY, THIS LOOKS INTERESTING

'X' was just a normal person who watched TV, worked (or didn't as the case may be) and had some spare time. As computers become much talked about, 'X' thought, "I would like to try my hand at computing, surely it cannot be all that hard?". Well, before you could remember who Nolan Bush was, 'X' had a computer and was as happy as a pig in whatever makes a pig happy: connecting up cables here, tapping keys there and generally inhaling the aroma of new plastic slowly warming up. Ah, nostalgia (sniff).

Some days later the frustration started to niggle in the back of the mind; "Why can I not make up a screen like that? I would like to write a little maths package but how can I handle input? What sort of a program is this with only numbers?". 'X' had now found out what many of us had suffered in the early days - lack of information. But help was at hand in the form of 'PAGE 6' (I am now showing my age). This was a magazine not put together by staff writers. All those people who wrote an article were true ATARI enthusiasts and, in the early days, did not even get paid! How's that for dedication?

'X' tentatively picked up pen and paper and hesitatingly scribbled the question that had baffled the mighty down the ages, "Just what is DOS?". Running down to the postbox, the letter was despatched before the shaking hands could turn traitor and stuff it back into the pocket. Ah, the days of expectation that followed. Who wants to know the secret of Life, the Universe and Everything when, so soon now, the

magic of DOS may unfold?

Suddenly, with more of a bang than a whimper (the magazine was thicker in those days) the answer arrived. 'X' ripped the wrapping apart (say that after six pints) and hastily read the magazine from cover to cover. Yes, no, YES! There was the answer. Quickly sitting down, as the room began to spin, 'X' read and re-read what was printed there. After staring into space for a while, 'X' dropped the magazine in an undignified heap and dazedly wandered out of the room muttering, "OK, so DOS is easy, but what about all those ridiculous numbers on page 24? How can that be a super duper shoot-em-up?".

I KNOW HOW TO DO THAT

Once more, this time with confidence, 'X' pulled out the pen and paper. Next issue 'X' was to find that, having opened up the floodgates, the magazine was inundated with questioning letters. Strangely enough, 'X' knew the answers to several of the queries. "Huh," 'X' stated out loud (hastily looking round to see if anyone had overheard), "I could write a small program that would explain that so a monkey could understand". A couple more issues and that is exactly what 'X' did, thinking all the time that something so simple would be obvious to everyone. Imagine the surprise when, next issue, the article was printed and 'X' had to run round the countryside showing everyone the magazine. Hurray, what fame! what fortune! (what fortune?).

THE MYSTERY IS REVEALED

In all good thrillers the last paragraph is kept for the sole purpose of revealing whodunnit, but this is an exception as this is not the last paragraph. Want to know the name? It is written on the cover sheet that came with this magazine. Oh, all right. I can wait until you drag it, forlorn and wrinkled, out of the dustbin.

You may not believe this, but that was a true story; or rather, it could be. The only thing that stops YOU being the hero of my tale is YOU. Write the letter, review the software, explain the mysteries in an article. So what if you do not get all the spelling right? That is why the Editor is employed. This magazine has always relied on its readers sending in articles. Did you think that Les Ellingham, Ann O'Driscoll or all the others were born with the knowledge? We had to slave over a hot computer into the small hours reading articles and saying "What if I tried to do this?".

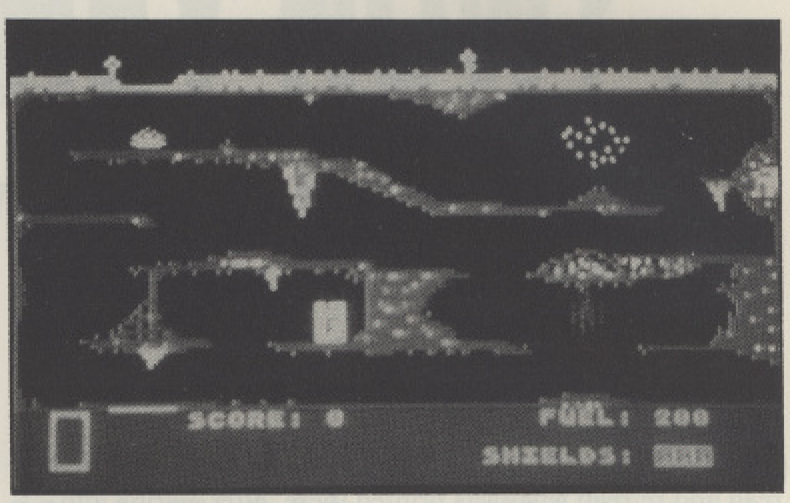
This magazine is the best thing that ATARI people have. You read it, you know it. Help your fellow ATARI owners, share your knowledge, no matter how small.

Editor's note. I don't know if Mark is fit enough yet on his road to rejoin us (no he hasn't been ill, he just lost the will to compute) but it would be nice if anyone who recognises themselves here to drop him a line to say whether they are still around. You'll find the address in past issues.

DISK BONUS

DEVIL'S DOMAIN

by Richard Gore



an arcade/adventure written in compiled Turbo Basic

You play the part of Lord Kronoz, the legendary devil hunter. It is your task to travel the Caves of Satan, collecting the six Crucifixes, the four Jewels and the four Vases of Eternal Good. Once they have all been found you may enter the final cavern and provided you have collected all the above artifacts you may capture the devil and make the world safe for another thousand years.

You control your Cavern Explorer tank using a joystick plugged into port 1 of your Atari. Moving the joystick left or right moves the tank in the corresponding direction. When you are not on a platform gravity will pull you downwards. You may go upwards by pushing the joystick upwards but this uses large amounts of your fuel, of which you only have a limited supply. There are canisters of fuel laying around left by your predecessors that you may pick up to increase your fuel supply. In order to jump and/or travel upwards using small amounts of fuel you will need to use the jump computer accessed by pressing the FIRE button on your joystick.

WHAT YOU HAVE TO DO

Your Explorer tank is purple with white caterpillar tracks, and has three shields to protect you from the various obstacles.

Each cavern is made up of stable rock platforms (the main colour scenery) and various obstacles such as stalactites, lava pits, waterfalls and volcanoes etc. (these are different in colour to the main scenery and should easily be recognised). Your tank's tracks can touch the main platforms but if the purple top touches you will loose one of your shields, and if any part of the tank touches any of the obstacles you will loose a shield. Loose all your shields or run out of fuel and your game is over.

During your travels you must collect various artifacts (as detailed above). To do this just touch the icons when you find them. A register of what you have collected will be kept in the bottom left corner of the information window (below the main cavern area). Also in this area will be your score, fuel supply and number of shields remaining.

Pressing the Space Bar during the normal game time (i.e. not when the jump computer is active) will activate the pause mode. Do not worry about the screen colours, this is to prevent 'screen burn' should the pause mode be left active for too long. Press Space again to resume play. Pressing OPTION quits the current game.

On reaching the final screen (you will know it when you see it) position your tank just above the arrows and press the RETURN key and if you have collected all the artifacts you will have completed Devil's Domain.

LOADING INSTRUCTIONS

1) Turn drive 1 and TV/Monitor on and the computer off
2) When the busy light has gone off insert the disk label side up and close the drive latch/door
3) Turn the computer on, the game will load and run automatically
4) Leave the disk in the drive while playing

* NOTE: The XE version of the game can be loaded by pressing the SELECT key while the border of the first screen is flashing. The XE version eliminates the need to access the disk for every cavern. If you use the XL version you must leave the disk in Drive 1 at all times.

THE JUMP COMPUTER

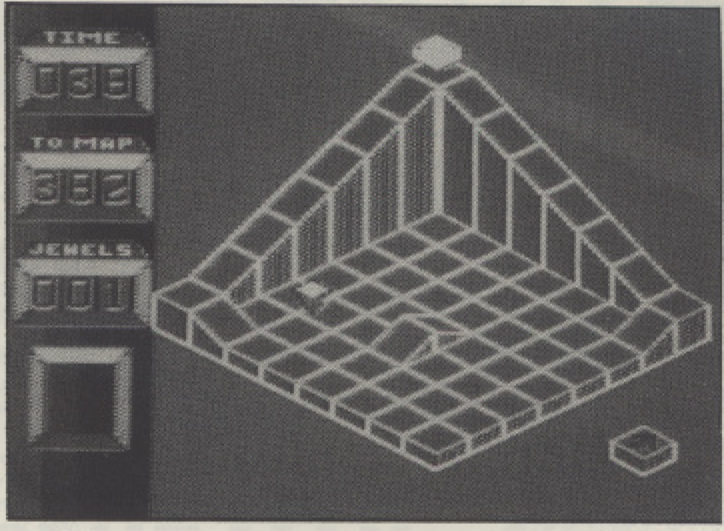
Press FIRE at any time and the game will temporarily freeze while you make your choice of jump parameters. The jump computer is a very important aspect of the game and it is most advisable to try to master how it can be used to perform accurate, fuel efficient, jumps.

First you must choose the power setting you wish to use (1-9) by pushing the joystick up and down. The more power the further you go and the more fuel you use. Press Fire once you have selected the power setting. Next you must choose whether you want to jump left or right. Simply move the joystick in the desired direction and press Fire once you have made your choice. Now you must choose the angle of elevation (10-90 degrees),again by pushing the joystick up or down and pressing Fire once you have made your selection. Classical motion laws are not obeyed and the larger the angle of elevation the further you will travel. This is a good way of travelling a long distance using very little fuel. If you select 90 degrees you will be propelled directly upwards regardless of the left/right setting.

Once all the selections have been made you are given the choice of performing the jump or aborting. Press the Space Bar to abort and return to the action or Fire to perform the jump. On pressing Fire the computer takes over and controls the jump according to the settings you made. BE CAREFUL not to use too high values and propel yourself into trouble. Practice using the various settings before you attempt to complete the game.

DEVIL'S DOMAIN is the BONUS on this issue's disk which comes with all of the programs from this issue ready to run. Disk subscribers will have already received their copy but the disk can be ordered separately for just £2.95 from PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR. Send a cheque or Postal Order or order by phone on 0785 213928 using Access, Visa or Switch.

SPINDIZZY



The computer mag's were chock full of rave reviews when SPINDIZZY was first launched. Eventually the Atari conversion trundled onto the market and all-too-predictably, its arrival was virtually unreported. Those who discovered it were delighted to find the game lacked none of the playability and addictiveness of the earlier versions.

One day you arrive at work to find your employers at the Corporation have discovered a new dimension containing a strange artificial world hanging in space. As the trainee assistant cartographer for unknown worlds you've naturally been allocated the prestigious task of further exploration. You've been given a Geographical Environmental Reconnaissance Land mapping Device (Gerald for short!) which initially holds a radar map of the strange world's surface. Your instructions are to guide Gerald through the numerous locations and collect energy in the form of jewels, for which you'll be awarded additional time. Time is indeed the all-important factor - if you don't move fast, your mission is terminated. If you lose or destroy your craft it's re-created at the last 'safe' position visited, but the time allowance is reduced.

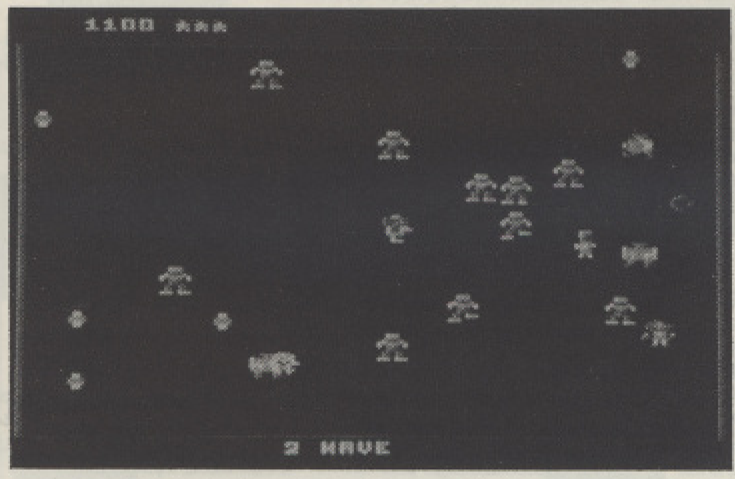
I couldn't review Spindizzy without mentioning Marble Madness, the classic arcade hit on whose theme it's based. The principal talking point of both games is the graphics, and here we have an enormous quantity of three-dimensional 'rooms' containing platforms, lifts, switches, trampolines and other unlikely obstacles. At any point you can toggle the shape of Gerald between a ball-bearing, an inverted pyramid and a gyroscope - some screens are easier to negotiate using a particular shape. If you desire, you can also change the colours. Another key press displays a map of the entire complex, showing your current position and the rooms that you've yet to discover. Due east of the starting screen is a beginners section that serves to demonstrate some of the essential playing techniques. The time reduces more slowly here, giving you a welcome chance to experiment.

Spindizzy is clearly a very competent production, comprising most of the ingredients that go towards making a classic. The graphics are excellent with several nice touches such as the choice of different character shapes. Sound is perhaps the only area lacking but it's more than compensated by the addictive - sometimes frustrating - nature of the challenge. There's no doubt that Spindizzy is another vital component of any respectable games collection.

Title:	**SPINDIZZY**
Publisher:	**Electric Dreams**
Price:	**£9.95 (or less)**
Supplier:	**Various**
Format:	**Disk**

Reviewed by Paul Rixon

ROBOTRON



At first it was a technological breakthrough. Mankind created the Robotrons - a species of robot so advanced they no longer needed their human creators to think and act. But then the Robotrons turned on their masters and threatened to destroy the world - or transform its inhabitants into vicious mutants!

So goes the plot of ROBOTRON 2084, a classic shoot 'em up dating back to the good ol' days of the early 1980s when the Atari 400/800 series ruled supreme (you couldn't expect to buy one with much change out of £500 though!). Whilst most shoot 'em ups of this era have almost been cloned to oblivion, the distinctive flavour of Robotron has largely been preserved. This is quite surprising since the game concept has got to be one of the simplest in existence. As a lucky(?) human survivor of the Robotron onslaught, you're placed in the centre of a largely blank playfield. Your task (should you choose to accept it, as they say) is to fend off the incoming hordes of battle-thirsty aliens with your trigger-operated anti-robot laser gun. The Robotrons attack in waves, each containing a variety of different species. 'Grunts' are the beastly robots whose primary mission is to wipe you out, 'Giant Brains' can electrocute you on contact or fire cruise missiles to pinpoint your exact location, whilst 'Sinister Spheroids' spawn all sorts of deadly creatures. There are lots of other nasties too.

You begin with five lives but for every twenty thousand points you earn another chance to persevere. You can boost your score by rescuing stranded humans on your travels - to do this you should try and steer clear of the centre screen position and concentrate on wiping out the Spheroids. Watch out for the Giant Brains too, as they're capable of re-programming friendly humans into hostile mutants! Initially you can kick off on one of five difficulty levels and of course the subsequent waves are increasingly more demanding. There's a two player option but it's basically a case of passing the joystick back and forth for alternate goes - hardly an innovation!

Needless to say Robotron 2084 is not stunning in any respect, especially in the audio-visual department. However, its strength lies in the straightforward theme and its heavily addictive nature. If you enjoy shoot 'em ups of any sort then Robotron is bound to be a worthwhile acquisition.

Title:	**ROBOTRON 2084**
Publisher:	**Atari Corp.**
Price:	**£12.95 (or less)**
Supplier:	**Various**
Format:	**ROM Cartridge**

Reviewed by Paul Rixon

contact ... contact ... contact ... contact

FOR SALE

XL SYSTEM: 800XL, 1050 with leads, ICD Printer interface, Utilities various magazines and blank disks £150 ono. Phone Redcar 0642 476877

XE SYSTEM: 65XE with XC12 recorder, multi-colour joystick, 21 cassettes and 5 cartridges. £130 Will not split. T Y Cheung, 16 High Street, Grimethorpe, Barnsley, S Yorks S72 7LS

XL SYSTEM: 800XL, 1050 Drive, 1010 tape deck, books, magazines, joystick and 3 games £80. Phone 0623 20489 after 6pm

MAGAZINES: Page 6 Nos 17 to 30 inclusive £14 plus postage. Transdisk and Mini Office £7.50 each plus postage. Timewise and Mydos 4.3 £5.00 each plus postage.. Phone 0995 40128

1010 CASSETTE: £30 also Montezumas Revenge, Spy vs Spy-Island Caper and New York City £3 each. Midimaster £15.. Phone 0474 327103 after 6pm

XE SYSTEM: 130XE, 1050 Drive excellent condition. Manuals, Books, some software, 2 folders of ATARI USER £100 ono. Phone 081 311 2387

XL SYSTEM: 800XL, 1050 Drive, Two joysticks complete with cables, software disks and manuals £130 ono. Phone 0235 833856 after 4pm

800XL HARDWARE: 1050 Disk Drive, 1010 cassette deck, paddles, ICD Printer interface, Action, SpartaDOS, Atari Artist, touch tablet, assembler/editor, Dos XL. Other utilities including Print Shop plus books etc., all going at Rock Bottom Prices. Phone Jim on 0343 842283

XL SYSTEM: 800XL, 1050 Disk Drive, 850 interface, Centronics printer interface, 1020 Printer, 1010 tape deck and lots of software £250 ono. Phone 041 776 4837 after 6pm

XL/XE SYSTEM: 800 XL, 65XE computers with 1029 Printer, XC12 cassette, 1050 Drive with all leads and cables. Also includes 12 books and Utilities packages. Will not split. Buyer must collect £250. Phone 0773 716250

XE SYSTEM: 65XE and XC12, Mint condition with lots of original tape software and joystick, only £50. Phone 0462 674905

XE SYSTEM: 65XE with XC12 recorder, 800XL. All leads and manuals. Phone Ben on 0669 40269

1050 DISK DRIVE: Very good condition complete with cables, manual, PSU and £90 worth of disks - including Mini Office 2, few games, lots of blanks and PD. £70 ovno. Simon Williams, 56 Heathfield, Martlesham Heath, Ipswich, Suffolk IP5 7UB or phone 0473 610115

MODEM: Microlink Dual Speed (1200/75 & 300/300 Baud) V21/V23 Separate BT type socket on rear and RS232 socket to computer (lead and software required) Mains powered in excellent condition and full working order £135. Phone Terry 061 654 7160

XL SYSTEM: 800XL, 1050 Drive, Touch Tablet and Graphics software. Various games including FS2, joystick, leads and manuals all boxed in excellent condition £120 buyer collects or pays postage. Phone Chris on 0952 641165 after 6pm

MAGAZINES: Number of old Atari Users (86-88) for sale. M Humphries, 12 Greenfield Road, Little Sutton, Cheshire L66 1PF

PRINTER: Daisy Wheel, Ricoh 1600S, Fast, Wide Carriage, Complete with Atari interface. £50. Phone 0625 420782

XL/XE SYSTEM: 130XE, 800XL, Two XC12 tape deck, 1010 tape deck (no lead) Pro 5000 joystick, Page 6 nos: 34 - 55 excellent condition, manuals, books and over 350 games £250 ono, No splits. M O'Brien, 42 Colworth Road, Northfield, B'ham B31 1QL

XE SYSTEM: 65XE, XC12, 1020 Printer/Plotter. All leads, cables and manuals supplied, £60 ono. A Ali, 77 Grasmere Ave., Slough, Berks SL2 5JE

XL SYSTEM: 800XL, 1050 drive with US doubler, 1010 recorder, Epson RX100 with Centronics interface, Parrot II sound digitiser, Touch Tablet with Atari Artist and 3 joysticks. With over £300 worth of software. All this for £300.. Phone Tom on 0425 612119

XL SYSTEM: 800XL, 1050 Drive boxed and all cables, graphic tablet, joystick, books and 40 games. £160 buyer collects or pays postage. Phone 0536 710514

XL SYSTEM: TWO 800XL's, 1050 Drive, XC11 recorder, 3 handle joystick, Mags, Manuals and leads. Over 200 games on tape and disk, all worth £700 will sell for £275 ono and delivery possible.. Phone Carl on 081 598 1927 Mon-Thurs after 4pm

800XL: Two one perfect, one faulty, two 1050 drives, disk boxes including disks, joystick, Grafix Printer cable and 70 magazines for £200.. Phone 021 744 3602

XL SYSTEM: 800XL, 1050 drive, XC12 recorder, 1020 printer/plotter, 850 interface. All good working order and complete with all leads and power supplies. Loads of games, £180. Phone 0272 735124 or 505285

800XL SYSTEM: 800XL, 1010 Tape deck 1050 Disk Drive with Laser chip, 850 Interface, Trackball, Touch tablet, Paddles together with cartridges, cassettes and disks plus full manuals. £180. Phone 071 504 5500

XE SYSTEM: 130XE, 1050 Drive, 1029 Printer, Transformers, leads, joystick, manuals, Mini office plus other disks - games and blanks - £200 ono. Also a near new computer desk, black, with three pull out shelves and paper tray, Cost £60 will sell for £30 ono. Phone 0223 873076. Buyer collects, or could deliver within reasonable distance

XL SYSTEM: 800XL with tape deck plus 1050 disk drive, all leads original boxes, joystick all excellent condition £150. Plus 800XL with data recorder and joystick in original boxes with leads £90. Also some software included.. Phone 0522 721897

800XL SYSTEM: 800XL with over 100 games, Printer plotter, joystick, data recorder with built in turbo format, manuals and books £225 ono. Phone 061 338 5941 after 7pm

XL SYSTEM: 800XL with. Phonemark data recorder all leads and some games, all good working order £70 buyer collects or pays p & p. Phone Adam on 081 578 8094 after 6pm Mon-Fri

XL SYSTEM: 800XL silver covers missing on Start and Select keys also no plastic cover on lettering on right of keyboard. Computer works fine. Power supply lead sometimes, dodgy. TV lead fine. Hence only £40 buyer collects or pays p & p.. Phone Adam on 081 578 8094 after 6pm Mon. to Fri.

XE SYSTEM: 130XE, 1050 Disk drive, XC11 tape deck with cables and Touch Tablet. 35 disk based games with storage unit, 100 programs on tape plus De Re Atari and 80 magazines £160 ono. Phone 0483 64727

TAPE DECK: XC12 data recorder, 65XE (not working) power pack, 66 games, some magazines and 130XE Handbook. £100 (will sell separately). Y Nabi 1176 London Road, Leigh on Sea, Essex SS9 2AH

XE SYSTEM: 130XE, 1050 Drive, 2 Data recorders, Touch Tablet, Printer Interface. Joystick and over 100 games plus serious software, books and magazines £110 the lot. Buyer to collect. Phone 0268 767668 after 4pm

XE SYSTEM: 65XE, XC12 recorder, Cheetah joystick plus games including Fight Night and Pole Position cartridges £95 ono. Phone Ben on 081 208 2697 between 5.30-7.30pm

XE SYSTEM: 65XE, XC12 Cassette, 2 Joysticks and over £150 worth of games all in perfect condition. Will sell for £120 ono.. Phone Simon on 0734 866177

HARDLY USED: 130XE, tested but unused, as new in box £80. Also 800 (48K) good condition with 1010 recorder £70 plus basic cartridge. Both including p & p. Write: D Hood, 5 Mossview Quadrant, Cardonald, Glasgow G52 2TU or phone 041 882 8907 Mon - Fri after 6pm

XL SYSTEM: 800XL, 1010 Recorder, 38 Magazines, 2 Joysticks and 170 games. Worth £700, bargain at £200. M Argent, Swallow Cottage, Mudford, Yeovil, Somerset BA21 5TF. Tel. 0935 850507

INTERFACE: Atari 850 Interface with leads, power supply and manual £30 ono or exchange WHY.. Phone 0276 20791

XL SYSTEM: 800XL, 1050 drive, Graphic tablet and cartridge, Transdisk, 25 games, joystick and all cables, mauals and books £160 plus p & p. Phone 0536 710514

WANTED

MANUAL: ST Owners manual or any information on the ST or SF314/5 drive for a complete novice. Phone 0703 676407

1050 MANUAL: Must be in good condition. Write to A Ali, 77 Grasmere avenue, Slough, Berks SL2 5JE

S.A.M: Has anyone got a copy on tape or disk, or Mickey in the Great Outdoors tape/disk either for under £5.. Phone 0494 813527

PRINTER: 1029 Printer, must be in VG or excellent condition, willing to pay reasonable price. Write Mr. Sandy, 9 Renfrew Close, Brant Road, Lincoln LN5 9AU

OLD UTILITY: Has anyone a copy of the old Atari User Toolkit on tape? Phone Mick on 081 533 3774

PAGE 6: Issues 35 and 42 wanted to complete collection will exchange. A Thompson 135 Henllys Way, St. Dials, Cwmbran, Gwent NP44 7NF

WANTED: Electronics enthusiast requires dead 1050 drives for spares and repairs. Up to £25 paid inc. postage. Or maybe you want one repaired? Phone Mark 0752 344650

XE SYSTEM: 130XE with XF551 drive. Reasonable price paid with or without software. Phone Ben 0669 40269

WANTED: Help in my Spanish studies, any tutorials or aids on disk either 8-bit or ST. Write to C Smith, 93 Preachers Lane, St Ebbs, Oxford OX1 1RT

LEADERBOARD: Wanted on disk will swap Bop n Wrestle, Conan, Aztec, Koronis Rift etc. Write to A Ali, 77 Grasmere Ave., Slough, Berks SL2 5JE

SPARTADOS X: Cartridge wanted also 1050 with US Doubler fitted.. Phone Peter 0203 691392

PEN PALS/HELP

UTILITIES: Chipmunk and Howfen Dos information wanted. Write to Ricky 10B Tower, Southville, Cwmbran, Gwent NP44 3QY

XL/XE OWNER: Wants penpals to swap hints and tips write to A Staniaszek, 101 Ruislip Road, Greenford, Middx. UB6 9QF or phone 081 578 8094 after 6pm Mon-Fri

PENPAL: Penpal wanted - no disk or printer owners. Contact Steven, 37, Mossdale, Staffs B77 4PJ

HELP: Can anyone help with instructions for Koronis Rift and Nightmares? Write to R Gore, 79 Sprotbrough Rd., Sprotbrough, Doncaster DN5 8BW

DESIGNER PROGRAMS: Does anyone want a special utility or educational program to your specification - £5 for disk, £4 for cassette - Send sae to A Thompson, 135 Henllys Way, St Dials, Cwmbran, Gwent NP44 7NF

HELP: Can anyone help! I need a routine that will handle the multiplication of large numbers beyond the limit of XE Basic, which is 10 digits. Please write to B Cullen, 5 Maplewood Court, Springfield, Dublin 24, Ireland

HELP: Can someone tell me how I can get my 800XL to print '£' sign from an Epson MX-100 III printer. Write to M Adams, Cygnus, Knoll Way, Warden, Isle of Sheppey, Kent ME12 4PA

USER GROUP: A new user group dedicated to Rambit-Turbo cassette load. For details write to D Peg, 6 Pen Morfa, Tywyn, Wales LL36 9BL or phone 0775 89202 or 0654 711331

CONTACT is FREE of charge and may be used by any genuine Atari enthusiast for contacting other owners. Any notice may be included except those offering software only for sale or exchange or those offering items for sale commercially. The Editor reserves the right to omit or edit any notice received at his discresion. If space is tight, notices may be shortened and addresses may be omitted with only telephone numbers being published.

Send your CONTACT notice to CONTACT, PAGE 6, P.O. Box 54, Stafford, ST16 1DR. Please write your notice on a separate sheet of paper, not as part of a letter.

FOR SALE ... WANTED ... PEN PALS ... ADVICE ... HELP ...

THE ACCESSORY SHOP
ISSUE 56

BARGAIN SOFTWARE

Still plenty of software around for your XL/XE and plenty of items in stock in the Accessory Shop. All of the following are brand new and at considerably less than the original or recommended prices. Complete your software collection now before it's too late!

STILL AVAILABLE

TWO POPULAR ROMS BACK IN STOCK

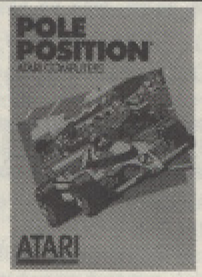
RIVER RAID - ONLY £3.95

KABOOM - ONLY £2.95

See previous issues for full descriptions of these great games

BACK AGAIN!

POLE POSITION



ROM CARTRIDGE

The ultra-realistic graphics and sounds of the Grand Prix explode into your living room in this computer version of the classic arcade hit. Complete a lap in qualifying time, then take on the Fuji raceway and competing drivers in a high speed race. One of the all time classics.

Normally £12.95

OUR PRICE £6.95

BLUE MAX

BACK AGAIN!

One of the classics of Atari history! Blue Max is set in 1915 during World War I and has you flying a mission in a bi-plane fighter bomber along a river attacking enemy planes and bombing bridges and the enemy's airfields. Superb diagonal scrolling similar to Zaxxon makes this an exciting classic game.

Normally £14.95

OUR PRICE £7.95



ROM CARTRIDGE

BACK AGAIN!

BATTLEZONE



ROM CARTRIDGE

Another cracking arcade conversion that set new standards. You command a tank on the battlefield under attack from enemy tanks and flying saucers. You can manoeuvre through 360 degrees as the enemy attacks from all directions. Watch your radar, turn and blast as the enemy approaches at speed. It takes nerves of steel. One player, five skill levels.

Normally £14.95

OUR PRICE £7.95

ROBOTRON 2084

NEW!

It's the year 2084, and you're the only being left who can defend humanity against the Robotron armies! You've got to move quickly to rescue the defenceless humans and blast fast with your anti-robot laser gun to shatter the oncoming waves of Grunts, Hulks, Brains, Spheroids, Electrodes and mutant Progs. Only you can save the last survivors!

Normally £12.95

OUR PRICE £6.95



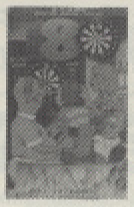
ROM CARTRIDGE

NEW CASSETTE BARGAINS!



KIKSTART

The ultimate off-road motorbike scramble simulator. Guide your rider carefully over the obstacles in this all action simulator for 1 player against the computer or 2 players against each other as well as the clock



180

What can we say? A great darts challenge. Eight opponents, digitised speech, two player option. live joystick control, full matchplay scoring, a sense of humour, superb playability, this one has it all!



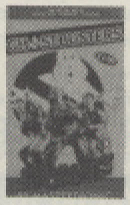
SIDEWINDER II

It is 27 years since the final battle of the war with the aliens. 27 years of peace have reigned in the Western Spiral Arm of the Galaxy. All this is about to change. Step aboard your craft and prepare to defend mankind in this all action space blast



ON CUE

Control that cue ball.! A challenging real life simulation which combines Pool and Snooker on the same cassette. An absolute must for both enthusiasts and beginners alike. Greatly addictive.



GHOSTBUSTERS

Has anybody seen a ghost? Matter of fact yes they have! At this very moment hundreds of ghosts are making their way to the infamous spook central. Only you can save the world from a disaster of biblical proportions. So go and show 'em how you do it!



NINJA

Blasts the belt off all other martial arts games! That's all it says on the inlay! Someone sure reckons this is the best punching, kicking, ducking and diving game around



ROCKFORD

The only true arcade version of the classic game Boulderdash. There are four levels on each of five different worlds with four screens on each level. It all adds up to eighty totally different playing screens. INCLUDES FREE GAME - CRYSTAL RAIDER

These cassettes are normally £2.95 each but OUR PRICE is just £1.95 each - two for £3.50 - any three for £5.00 - any 4 for £6.50 - any five for £7.50 or combine them with the cassettes on the inside front cover and get TEN CASSETTES FOR JUST £9.50!

LIMITED STOCK ITEMS

ALL ITEMS FOR XL/XE ONLY

INCLUDING NEW ITEMS NOT PREVIOUSLY LISTED

**These items of software are new to us or are replacements for items previously sold out
Some are in short supply and may not be available again. Get them while you can!**

ADVENTURES/ROLE PLAYING

DRUID
One of the best graphic role-playing adventures on the Atari. Your quest is to destroy four princes with spells, magic and fighting
DISK
Original price £11.95
OUR PRICE £3.95

SILICON DREAMS
Great sci-fi adventure from Level 9. Three superb adventures with graphics - Snowball, Return To Eden and The Worm in Paradise
DISK
Original price £14.95
OUR PRICE £6.95

JINXTER
An adventure from Magnetic Scrolls, the team that set new standards in adventure design Requires 1050 or XF551 drive
DISK
Original price £19.95
OUR PRICE £7.95

JEWELS OF DARKNESS
Three original classics from Level 9 - Colossal Adventure, Adventure Quest and Dungeon Adventure (the solution's in Issue 53!).
DISK
Original price £14.95
OUR PRICE £6.95

GAUNTLET
Possibly the most famous role-playing game of all. Explore the dungeons in this original game from Mindscape.
DISK
Original price £19.95
OUR PRICE £7.95

LANCELOT
Maybe Level 9's best adventure. Highly researched and well written, set in the times of King Arthur
DISK OR CASSETTE
Original price £14.95
OUR PRICE £7.95

THE ETERNAL DAGGER
Many consider the SSI role-playing games to be among the best. This is the follow up to the best-selling Wizard's Crown
DISK
Original price £24.95
OUR PRICE £8.95

ARCHON
Available again, the unique mystical battle set on a chess board. Control the squares in a battle between forces of light and dark
ROM
Original price £14.95
OUR PRICE £7.95

GAMES

SPINDIZZY
Well known and highly regarded game in which the aim is to explore and map a 3-D world. Excellent graphics and testing puzzles
DISK ONLY
Original price £9.95
OUR PRICE £4.95

PAC-MAN
Possibly the most well known of all computer games. Still a classic and still in demand
ROM CARTRIDGE
Original price £12.95
OUR PRICE £6.95

SMASH HITS 7
Four great games - Colossus Chess 3, Electraglide, Blue Max and Alley Cat. This sold out very quickly last time!
DISK
Original price £14.95
OUR PRICE £3.95

INTERNATIONAL KARATE
Atari owners waited years for this and when it finally arrived everyone raved over it. Still the best karate game around.
DISK
Original price £9.95
OUR PRICE £4.95

WAR GAMES

NATO COMMANDER
You are commander of Nato and your task is to defend Europe from Soviet invasion. Top class graphics, five scenarios
DISK
Original price £14.95
OUR PRICE £5.95

DECISION IN THE DESERT
Take command at the Battle of El Alamein. You can lead either side in this accurate simulation from the creators of F-15 Strike Eagle
CASSETTE
Original price £14.95
OUR PRICE £5.95

BATTLECRUISER
The complete simulation of World War I and World War II surface battles in the Atlantic from SSI. Simple graphics but detailed play
DISK
Original price £19.95
OUR PRICE £9.95

PANZER GRENADIER
A wargame of German armoured infantry on the Eastern Front. Five historical simulations, skill levels, joystick control, graphics
DISK
Original price £19.95
OUR PRICE £9.95

PRINT SHOP GRAPHICS
Your LAST CHANCE to get the official PRINT SHOP Graphics Library with 120 graphics and a printed out reference guide of the new icons. *ONLY DISK 3 NOW LEFT* covering Business, Symbols, Mythology and many others. These are all top quality graphics in the original Broderbund Print Shop packaging.
WE CANNOT GET ANY MORE OF THESE!
Original Price £12.99
OUR PRICE £4.95

SIMULATIONS

FLIGHT SIMULATOR II
WE ARE HOPING TO HAVE SCENERY DISKS 3, 4, 5 6 and JAPAN IN STOCK - PLEASE PHONE FOR DETAILS

SOLO FLIGHT
A very neat flight simulator, not as complex as FS2 but still with the real feel of flying. Ideal to learn on before trying FS2 itself!
DISK
Original price £14.95
SOLD OUT

MIG ALLEY ACE
An aerial combat simulation set in Korea with 3D graphics, cockpit instrumentation, different skill levels and much more
DISK
Original price £14.95
OUR PRICE £6.95

KENNEDY APPROACH
Totally unique. A simulation of Air Traffic Control at one of America's busiest airports. With real digitised speech, you'll feel you are there!
DISK
Original price £19.95
OUR PRICE £8.95

SARGON III CHESS
Regarded by some as the finest chess simulator of all. Nine levels from beginner to master. Ideal to learn with as the manual teaches all the fundamentals of the game
DISK
Original price £16.95
SOLD OUT

COLOSSUS CHESS 4
Claims to be the best chess program of all. The writers of Sargon III would disagree, but there is no doub this is a fine chess simulation particularly for advanced players
CASSETTE ONLY
Original price £14.95
OUR PRICE £6.95

WE SUGGEST THAT YOU CHECK AVAILABILITY OF THESE ITEMS BY TELEPHONE

A Further Selection

Here's the list of all the other items still in stock. Many of these program will be familiar but if you want to know more check out the past couple of issues where all of these programs have been more fully described. Some real classics and some great bargains!

GAMES

US FOOTBALL
American Football is now a big craze in this country and you can now play at home. Outsmart the defence, make tackles, select plays and more.
ROM *Normally £12.95* **OUR PRICE £6.95**

EASTERN FRONT (1941)
The classic war simulation by Chris Crawford that astounded Atari users when it was released. Based on Operation Barbarossa on the border of Russia.
ROM *Normally £12.95* **OUR PRICE £6.95**

MOON PATROL
Your beat: Sector Nine, home of the roughest, toughest thugs in the galaxy. Great 3D graphics and good music in this arcade conversion.
ROM *Normally £12.95* **OUR PRICE £6.95**

MISSILE COMMAND
Another of the all-time classic arcade games that has you defending cities from missile attack. For one or two players.
ROM *Normally £14.95* **OUR PRICE £5.95**

ZAXXON
One of the all time classics for the Atari, Zaxxon set new standards with its unique 3 dimensional battlefield and great graphics
DISK *RRP £9.95 disk*
CASS *£9.95 cass* **OUR PRICE £2.99**

HANGMAN
The original computer education game suitable for ages from 8 to adult. Three levels of play with 40 words in each.
CASS **OUR PRICE JUST 99p**

HARDBALL
American League baseball at it's very best. A highly regarded game - check the review in Issue 45 'THE best sports simulation on the Atari'
ROM *Normally £14.95* **OUR PRICE £7.95**

TAIL OF BETA LYRAE
Our A-Z of Atari Software series says "The ultimate 'Scramble' clone with superb graphics and music." A great horizontal scroller
CASS **OUR PRICE JUST 99p**

BALLBLAZER
From Lucasfilm, this top quality split screen game takes place in a games arena of the future. Two-player simultaneous play
ROM *Normally £14.95* **OUR PRICE £6.95**

FIGHT NIGHT
Fight Night brings you all the thrills of the boxing ring as you face the most brutal fighters ever in five separate battles, 1/2 players.
ROM *Normally £14.95* **OUR PRICE £7.95**

STRANGE ODYSSEY
At the galaxy's rim, there are rewards aplenty to be harvested from a long-dead alien civilization. Fabulous graphic adventure
DISK *Original price £19.95* **OUR PRICE £7.95**

RESCUE ON FRACTALUS
Ask old hands what was one of the best games ever for the Atari and a good proportion of them will say Rescue on Fractalus. They're right!
ROM *Normally £14.95* **OUR PRICE £6.95**

SUPER BREAKOUT
Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Needs paddles.
ROM *Normally £9.95* **OUR PRICE £3.95**

LODE RUNNER
Another classic, perhaps the best of all platform games. Includes a unique extra that allows you to create your own levels.
ROM *Normally £14.95* **OUR PRICE £7.95**

GAMES

ONE ON ONE
Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves
ROM *Normally £14.95* **OUR PRICE £6.95**

DESERT FALCON
A version of the classic Blue Max that finds you flying across the desert Indiana Jones style searching the desert sands.
ROM *Normally £14.95* **OUR PRICE £7.95**

CAVERNS OF MARS
Winner of one of the first Atari programming competitions, this was one of the first vertical scrollers and remains much sought after - *LAST FEW WITHOUT BOX BUT WITH FULL ORIGINAL MANUAL -*
DISK **LOW PRICE £4.95**

ZORK 1
One of the most famous adventures of all time. Classic Infocom in the original box and packaging. A real bargain!
DISK *Originally £29.95* **SUPER PRICE £2.95!**

KABOOM
Challenge the master bomber as he tries to bomb you out of sight. Great fun, especially for the kids who will love it
ROM *Originally £12.95* **SPECIAL PRICE £2.95**

RIVER RAID
One of the classic scrolling games in which you fight your way up river, bombing and shooting everything insight.
ROM *Originally £14.95* **SPECIAL PRICE £3.95**

MAXWELL'S DEMON
A simple yet challenging puzzle game which will get you totally addicted. In fact two games in one for double the fun
DISK *Originally £9.95* **OUR PRICE £1.99**

MR ROBOT & HIS ROBOT FACTORY
One of the most famous platform games that has you running and jumping over everything in sight. A really classy game
CASS *Originally £9.95* **OUR PRICE £1.99**

APPLICATIONS

MASTERTYPE
Now anyone can learn to type whilst playing a challenging game. One of the original 'game based' typing tutors and a bargain priced ROM!
ROM *RRP £14.95* **OUR PRICE £2.95**

MICROSOFT BASIC
Microsoft Basic is ideal is you want to convert programs from other machines as it contains many of the commands missing from Atari Basic
DISK *RRP £9.95* **OUR PRICE £5.95**

LETTER WIZARD
For those who need a little more sophistication in a word processor, Letter Wizard gives you all of the features you would expect
DISK *Original Price £19.95* **NOW £5.95**

INVITATION TO PROGRAMMING 2
Entitled Writing Your Own Programs, comprises TWO cassettes and TWO workbooks and does not require Invitation To Programming 1.
CASS *Original Price £12.95* **OUR PRICE £2.95**

MUSIC PAINTER
An exciting educational program that helps to teach music by using colours instead of notes. For children or adults alike
DISK *Originally £14.95* **OUR PRICE £7.95**

APPLICATIONS

MACRO ASSEMBLER
The Macro Assembler will allow you to create your own machine language games and applications 5 times faster than with the Assembler Editor
DISK *Normally £19.95* **OUR PRICE £7.95**

TIMEWISE
Why not use your Atari as an electronic diary? Timewise allows you to keep track of all your appointments and important dates
DISK *Originally £22.99* **OUR PRICE £3.95**

PLANETARIUM
A fascinating look at the heavens. Over 1200 stars, 88 constellations, the solar system and more than 300 deep-sky objects are depicted -1050 DRIVE ONLY - please state when ordering if you have a US Doubler
DISK *Normally £16.95* **OUR PRICE £ 6.95**

PROOFREADER
Users of Atariwriter will be delighted with this, the long lost spelling checker for the Atariwriter cartridge!
DISK **OUR PRICE £5.95**

BASIC CARTRIDGE
Some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic.
ROM **OUR PRICE £3.95**

EDUCATION

JUGGLES RAINBOW
A first computer experience for children aged 3 to 6 that teaches the concepts of above, below, left and right plus letter recognition
DISK/CASS **OUR PRICE £5.95**

JUGGLES HOUSE
Another for 3 to 6 year olds teaching the concepts of inside, outside, upper and lower with Juggles' House and Toyshelf.
CASS **OUR PRICE £5.95**

SPECIAL OFFER - PURCHASE BOTH JUGGLES PROGRAMS FOR JUST £9.95!

BOOKS

EASY PROGRAMMING FOR YOUR ATARI MICRO
This book went out of print 3 years ago and we have been searching for a replacement ever since. We are absolutely delighted to have found more stocks of one of the best beginner's books ever published.
NEW REDUCED PRICE £4.95

MICRO ENQUIRER
A large format book that covers the world of micros in general with some specific Atari sections. The book contains a lot of worthwhile background information on home computing
Published price £8.95 **OUR PRICE £2.00**

ATARI ADVENTURES
An excellent book written by adventure expert Tony Bridges covering adventures in general and showing how you can write your own adventures .
Published price £5.95 **OUR PRICE £1.50**

WRITING STRATEGY GAMES
If you are fed up with simple arcade style games but are not sure of the maths required in writing 'thinking' games like chess here is a book that will help you out.
Published price £5.95 **OUR PRICE £1.50**

ORDER FORM

ALL ITEMS FOR XL/XE

NEW SOFTWARE

Qty.	Title	Price	Total
	ARCHON	£ 7.95	
	BATTLECRUISER	£ 9.95	
	COLOSSUS CHESS 4(Cas.)	£ 6.95	
	DECISION IN THE DESERT	£ 5.95	
	DRUID	£ 3.95	
	ETERNAL DAGGER	£ 8.95	
	GAUNTLET	£ 7.95	
	INTERNATIONAL KARATE	£ 4.95	
	JEWELS OF DARKNESS	£ 6.95	
	JINXTER	£ 7.95	
	KENNEDY APPROACH	£ 8.95	
	LANCELOT (Disk)	£ 7.95	
	LANCELOT (Cass)	£ 7.95	
	MIG ALLEY ACE	£ 6.95	
	NATO COMMANDER	£ 5.95	
	PAC-MAN	£ 6.95	
	PANZER GRENADIER	£ 9.95	
	SILICON DREAMS	£ 6.95	
	SMASH HITS 7	£ 3.95	
	SPINDIZZY	£ 4.95	
	Total		

SERIOUS SOFTWARE

Qty.	Title	Price	Total
	BASIC CARTRIDGE	£ 3.95	
	HOME FILING MAN. / PAY OFF	£ 1.00	
	INV TO PROGRAMMING 2	£ 2.95	
	JUGGLES HOUSE	£ 5.95	
	JUGGLES RAINBOW	£ 5.95	
	JUGGLES RAINBOW/HOUSE	£ 9.95	
	JUGGLES RAINBOW - DISK	£ 5.95	
	LETTER WIZARD	£ 5.95	
	MACRO ASSEMBLER	£ 7.95	
	MASTERTYPE	£ 2.95	
	MICROSOFT BASIC	£ 5.95	
	MUSIC PAINTER	£ 7.95	
	PLANETARIUM	£ 6.95	
	PRINT SHOP GRAPHICS 3	£ 4.95	
	PROOFREADER	£ 5.95	
	SILENT BUTLER	£ 6.95	
	TIMEWISE	£ 3.95	
	Total		

GAMES SOFTWARE

Qty.	Title	Price	Total
	BALLBLAZER	£ 6.95	
	BATTLEZONE	£7.95	
	BLUE MAX	£7.95	
	CAVERNS OF MARS	£ 4.95	
	DESERT FALCON	£ 7.95	
	EASTERN FRONT	£ 6.95	
	HARDBALL	£ 7.95	
	FIGHT NIGHT	£ 7.95	
	KABOOM	£ 2.95	
	LODE RUNNER	£ 7.95	
	MAXWELLS DEMON	£ 1.99	
	MISSILE COMMAND	£ 5.95	
	MOON PATROL	£ 6.95	
	MR ROBOT - DISK	£ 1.99	
	ONE ON ONE	£ 6.95	
	POLE POSITION	£6.95	
	RESCUE ON FRACTULAS	£ 6.95	
	RIVER RAID	£ 3.95	
	ROBOTRON 2084	£ 6.95	
	STRANGE ODYSSEY	£ 7.95	
	SUPER BREAKOUT	£ 3.95	
	US FOOTBALL	£ 6.95	
	ZAXXON - CASS	£ 2.99	
	ZAXXON - DISK	£ 2.99	
	ZORK	£ 2.95	
	Total		

CASSETTES

see inside front cover

Qty.	Title	Total
	Total price post free	

99p CASSETTES

Qty.	Title	Price	Total
	HANGMAN	£ 0.99	
	TAIL OF BETA LYRAE	£ 0.99	
	Total		

PAGE 6 SOFTWARE

All on disk unless shown

Qty.	Title	Price	Total
	TRANSDISK IV	£12.95	
	TARITALK	£19.95	
	MINI OFFICE II	£14.95	
	SPELL ME - Disk	£ 6.95	

BOOKS

Qty.	Title	Price	Total
	EASY PROGRAMMING	£ 4.95	
	MICRO ENQUIRER	£ 2.00	
	ATARI ADVENTURES	£ 1.50	
	WRITING STRATEGY GAMES	£ 1.50	
	Total		

PUBLIC DOMAIN ETC.

Qty.	Title	Price	Total
	ISSUE 56 DISK	£ 2.95	
	8-BIT REFERENCE GUIDE	£ 6.95	
	TURBO BASIC	£ 3.95	
	Total		

FREE NIBBLER -
IF ORDER TOTALS £10 or more (ex. postage)
DISK ONLY - TICK IF REQUIRED ☐

TOTALS

Software	£
Books	£
Post and Packing on above	£ 1.00
Public Domain	£
PAGE 6 Software	£
Total	£

TELEPHONE ORDERS 0785 213928

***NOTE:** Post and packing as shown MUST be added to all software excluding special cassettes, public domain and PAGE 6 Software. Most goods will be despatched within a few days but please allow up to 28 days for delivery*

Name ______________________

Address ______________________

____

____

____

Total Order £

OVERSEAS postage PLUS 25%** £

Total £

*** NOTE OVERSEAS POSTAGE CAN SOMETIMES EXCEED THE VALUE OF THE ORDER - IF THIS OCCURS WE WILL WRITE TO YOU BEFORE SHIPPING*

Please make cheques payable to PAGE 6

☐ I enclose cheque/P.O. for £

☐ I authorise you to debit my credit card

☐ VISA ☐ ACCESS ☐ EUROCARD ☐ MASTERCARD

My card number is: ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

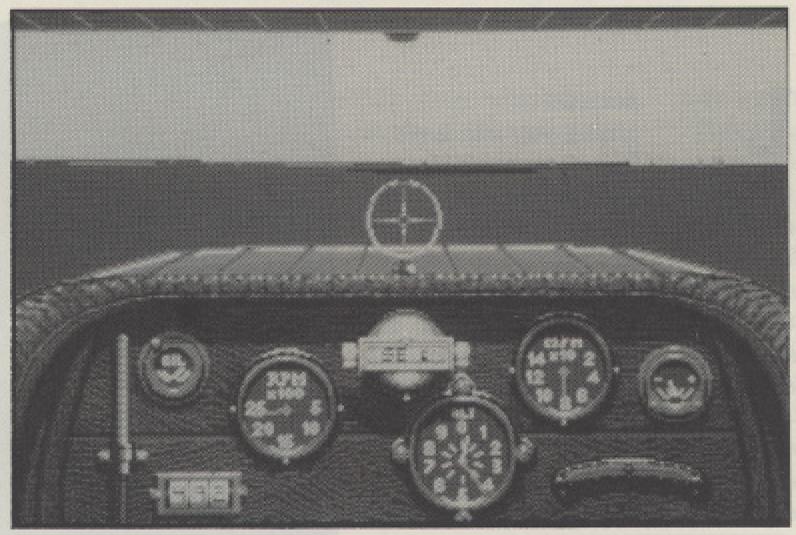
Expiry date: ☐☐ ☐☐

Signature ______________________

Please ensure that the name and address shown are the same as the cardholders.

POST TO: PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR Tel. 0785 213928 FAX: 0785 54355

KNIGHTS OF THE SKY



One of the most enjoyable flight combat simulators I've used recently is Warbirds, a World War 1 aerial warfare program on the Atari Lynx handheld console. Now Microprose have released a similar product for the ST called Knights of the Sky, which promises to be every bit as entertaining.

The program comes on two double sided disks and requires at least a 1MB ST(E) to run. The package also contains a glossy 102 page manual; a control summary card; and a large map of the Flanders Front, where the scenario is set. This map is important as all navigation is done by dead reckoning - radio navigation aids hadn't been invented at the time the action occurs.

On bootup you're treated to a very realistic looking old-time movie sequence showing WW1 aircraft behind the program's production credits. You can then choose from three main options, namely Flight Training, Dogfight Encounters, or World War 1.

TWENTY AIRCRAFT!

Flight Training allows you to learn to fly any of the twenty different Allied and German aircraft represented, and to explore the operational area covered. Almost every WW1 aircraft you can name is here: Sopwith Pup, Fokker Triplane, Albatross D5, to list but three - and each can be controlled via joystick, mouse, or keyboard. Whichever method you use takes practice - these aircraft aren't the easiest to fly!

Dogfight Encounters provides your first real taste of aerial combat. Here you choose to battle with one of sixteen German aces including such legendary characters as Manfred von Richthofen (the Red Baron) and Max Immelman (of Immelman Turn fame). You're then told his aircraft details and likely location, and have to fly to the appropriate place, visually identify his aircraft from the gaggle encountered, and engage him in a fight to the death!

The main part of the program is the WW1 option. It's May 1916 and you've just begun your career as an Allied pilot. Your ambition is to survive the remaining 30 months of the war and become the top scoring pilot - the Ace of Aces! At the start only a couple of aircraft types are available, but as time passes better machines enter service for your use. This also happens on the German side, so any aeronautical superiority you gain doesn't last long!

Missions are set by your commanding officer and occur every 3-5 days. As well as the basic mission which involves you in completing specific tasks, you can also deal with targets of opportunity as they occur - shooting down enemy planes and observation balloons, bombing enemy installations, and so on. This brings you additional prestige, medals, and promotions.

As time passes those famous enemy aces are also clocking up kills, so to overtake them you need to eliminate them. Clues to their whereabouts and details of their aircraft may be gleaned from newspaper articles and gossip heard after each mission. You can then personally challenge each one to a dogfight - unless they challenge you first!

You can forget about high-tech weapons, radar, autopilot, and warning systems in this simulation; it's just you, a primitive flying machine, and a rather unreliable machine gun against a similarly equipped opponent. Be warned - survival depends entirely on your skills as a pilot!

The dogfighting action is pretty exciting, giving the feeling you're up against a real enemy. The aircraft are slow, but very manoeuvrable and it takes some skill to outfly and outshoot your opponent. Success results in his plane streaming smoke and spinning down into the ground. Failure may be fatal, as there are no parachutes!

EAGLE EYES NEEDED

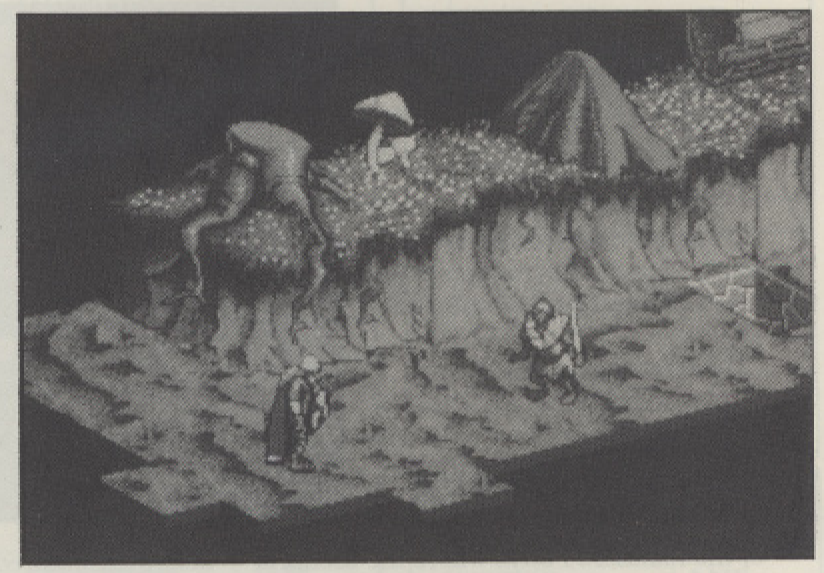
The program's graphics are rather good. Cockpit detail is restricted to the limited instrumentation of the day, but disappointingly all aircraft have the same cockpit layout. Most of the instruments do work as expected though. From the cockpit you can look 360 degrees around you - there's no radar of course, so you need eagle eyes to locate the enemy, although the program's various external view features do help here. There's plenty of ground detail and the representation and animation of the different aircraft types is handled very well. Screen update rate is acceptably high too, so the overall effect is fairly convincing. Even the information screens displayed between missions are impressive with some excellent artwork on show, particularly that depicting the aircraft.

Sound is reasonable too. There's some contemporary ragtime music accompanying the bootup sequence and again in the bar scene between missions - played on an animated pianola. All the expected sound effects are provided, but I particularly liked the aircraft engine noises, especially the spluttering heard when the engine takes a bullet or two!

Overall this is one terrific program. Not only is it exciting, addictive, and fascinating from the historical aspect, but it's refreshingly different from all those high-tech jet simulators we've seen recently. If you want a taste of REAL air combat action then Knights of the Sky is the simulator to buy.

Title:	KNIGHTS OF THE SKY
Publisher:	Microprose
Price:	£30.99
Reviewer:	John S Davison

ALTERNATE WORLDS...



HEIMDALL

Six characters, with attributes such as Strength, Health and Dexterity, fight their way through underground mazes to save the world - sound familiar? Yes, in many ways Heimdall is another Dungeon Master clone, but it has a few variations which may interest you.

All the familiar ideas are there - the right mouse button gets you to a supplementary screen where all your possessions are shown graphically; your attributes, such as hit points, increase as the game progresses and you gain experience; there are hidden doors to find on the walls and pits to avoid in the floor; exploring carefully or killing monsters will provide you with food, weapons, spells, coins and clues; and there are many puzzles to solve as you fight your way through about twelve islands on each of three worlds to retrieve three missing weapons of the Norse gods.

So what is different about Heimdall? Well, the graphics are excellent - the view is a full-screen detailed landscape or dungeon seen in 3-D from an angle above your chosen character, and the animation of your character as he moves is very good. The initial screen shows a map of your current world (there are three worlds to explore in order - Midgard, the World of Men; Utgard, the World of Giants; and Asgard, the Home of the Gods) and clicking on an adjacent island takes you straight there. You can then explore the island with two companions who you must have chosen BEFORE you set sail!

In all you can have five characters to go with you on your quest - whom you are allowed to choose depends on how well you do in the first part of the game. This initial part of the game is made up of three little arcade games - the better you do in these the better choice of accompanying characters you will be offered.

The arcade games are:

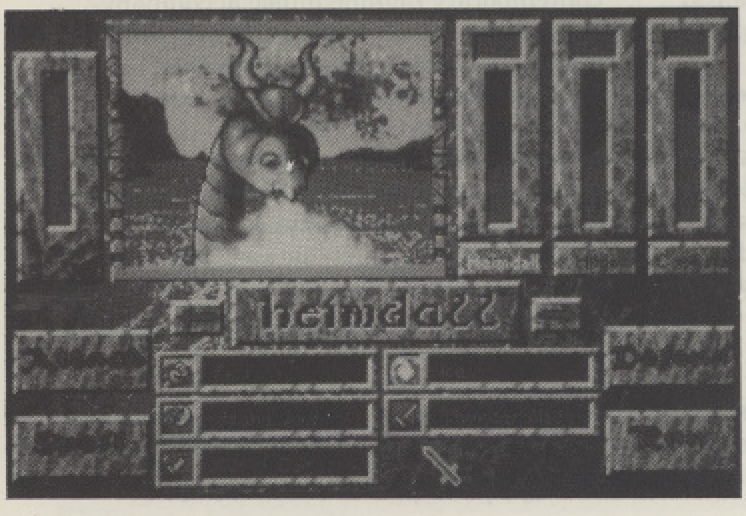
Axe Throwing Contest: you have ten axes with which to cut the barmaid's eight pigtails - unfortunately the beer is a bit strong for you and your hand is shaking (i.e. the joystick doesn't control your aim very well!).

Pig-Chasing: while still under the influence of the alcohol you must use the joystick to catch a greased pig.

Boat Fighting Test: (no you don't have to fight the boat!) use the joystick to jump along a boat and knock some guards out of the way.

Unfortunately all three games are rather trivial, rather difficult to succeed at and take forever to load. You also only get one chance at each - no opportunity to practice - if you want another try you have to reload the game from the start! Also, no matter how badly or well I did in the arcade games I was always offered the same 17 crew-members to choose from!

Each island is made up of from 3 to 25 "rooms" to explore - there are lot of baddies to fight and lots of spells and weapons to find. You need to use spells to activate certain routes and there are all the usual pits, secret doors, keys and so on. When you get in a fight the screen switches to a different display showing an animated view of your opponent, your respective hit-points, and your available weapons and spells. You just click on a weapon or spell and then a command box (attack, spell or defend). It is a little clumsy as your weapon may be a long way from the attack box, so that you are sweeping the mouse from side to side. Your options are also rather limited as the only way to defend is to click on "defend" just when your enemy begins his attack, but the best way to attack is to click on "attack" just when your enemy begins his attack! Makes "defend" rather pointless really!



The interfaces are rather clumsy, movement is done via the joystick, but fighting and using items is done with the mouse so you are constantly switching between them, with many seconds of black screens when you issue some commands. When you walk into a chest with the JOYSTICK a box pops up asking you whether you wish to open it or not - and you have to use the MOUSE to answer YES or NO - why on earth couldn't they have allowed the joystick?

I am currently trying to get past a sea serpent to reach the last island on the first world so I have quite a way to go yet. The game has plenty to it, and the graphics are undoubtedly excellent, but the whole thing seems rather slow and unwieldy (disembarking can take as many as 4 diskette swaps!). The game, by the way, needs 1MB memory.

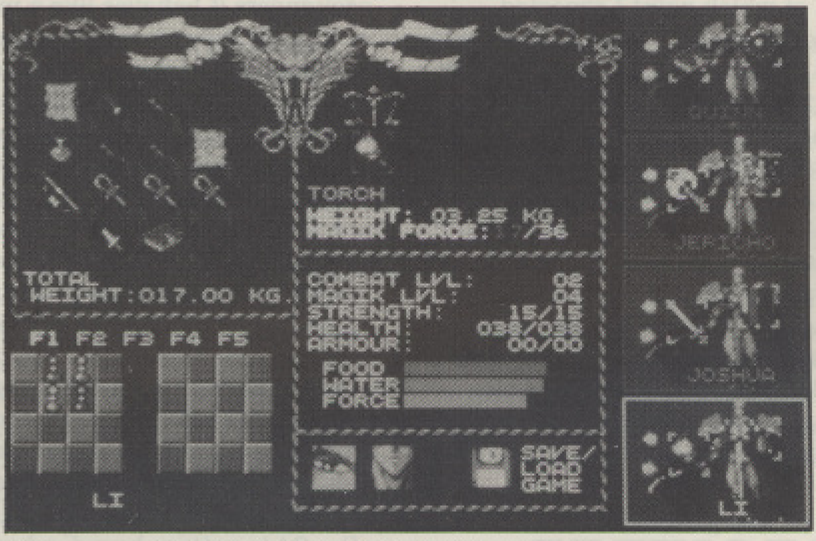
- ***SIGHT & SOUND*** - *excellent graphics and animation, sounds a little sparse, but nice background music*
- ***GAMEPLAY*** - *Lots to explore, lots to do, but not a brilliant mouse/joystick interface*
- ***VERDICT*** - *Worth looking at, but you'll have to be quite patient if you want to finish it*

which to choose?

SHADOWLANDS

Four characters, with attributes such as Strength, Health and Armour, fight their way through an underground maze to save the world - sound familiar? Yes, in many ways Shadowlands is another Dungeon Master clone, but it has many excellent new features that make it well worth looking at.

All the familiar ideas are there - the right mouse button gets you to a supplementary screen where all your possessions are shown graphically; your attributes, such as magic level, increase as the game progresses and you gain experience; there are hidden buttons to find on the walls and pits to avoid in the floor; searching carefully or killing monsters will provide you with food, water, weapons, spells, coins and clues; and there are many devious puzzles to solve as you fight your way through to the thirteenth level for your final battle with the Overlord.



So what is different about Shadowlands? The most obvious visual differences are the viewpoint and the light effects. The dungeon is seen from an angle above your characters so that you can see them and the enemy moving across a 3-D landscape; nearby walls which might obscure your view are replaced by simple outlines so that you can see the area around your character fully and still know where the walls and doors are. The lighting is provided by a new technique called Photoscape: torches light up a small area (which decreases as the torch burns low!), fireballs can be seen flying through the air and then explode to light up a large area, firedemons are surrounded by light, and so on. There are gradations of brightness from the centre of a torch out to the edges of its sphere of illumination, giving a very realistic and atmospheric feeling to the shadowy views within the dungeons.

Light is also used to excellent effect in some of the puzzles, whereby certain switches, teleports, and traps are activated by the presence or absence of light!

But a very major difference which is not quite so obvious initially is that your four characters are NOT stuck together in a bunch. They can be sent off to perform individual tasks - they don't have to remain in sight of each other or even on the same level of the dungeon. The whole game is mouse-driven. There are small pictures of the characters in the corners of the screen which allow you to select them and then command them: by clicking on the appropriate part of the body and the required target (item, person or location) you can give commands such as walk, lead (the other three), use, get, drop, throw, eat, drink, read, operate, cast and attack.

The actions happen simultaneously - one guy can be walking across the room to pull a switch while another is attacking an enemy with a double-axe, the third is throwing a Freeze spell at the monster and the fourth is walking around a different room looking for the door! The ability to separate the four warriors is used to generate lots of nasty situations and interesting puzzles. There are places where you must send your warriors along different routes in order to solve problems, and one way routes and multiple teleporters which force your party to split up and fight individually.

The system for issuing commands is not completely intuitive, so read the manual carefully - some birds attack you as soon as the game starts, but you don't find out how to hit one until page 24! And a couple of fairly important details are not mentioned at all: blank scrolls can be read when you reach a higher magic level; the resurrection facilities can restore weapons as well as people!

Throwing spells across the 3-D landscape at moving targets takes a bit of practice but is much more realistic than most implementations. In general it is rather too easy to die - unless you are checking the status screen you get no warning of imminent death from hunger or thirst (and food seems a bit sparse - I am on level 5 and getting desperately low - I may have to go back a VERY long way and replay the whole game if I don't find a good supply soon!), and many of the monsters can kill your weaker members very quickly so you need to plan some of the fights very carefully. Fortunately the SAVE/RESTORE facilities are reasonably swift, though personally I would prefer a slightly better balance so as not to have to use them quite so often!

Things don't happen quite as fast and furious as in Dungeon Master, but the innovative use of the lighting and the ability to split the group up add an extra dimension to Shadowlands and set it apart as a D&D game well worth looking into.

Double-sided drives only.

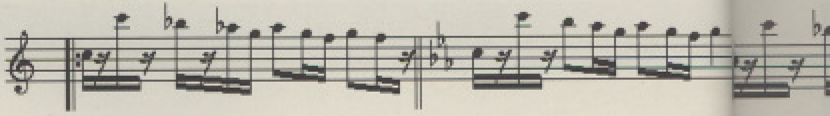
- ***SIGHT & SOUND*** - *Brilliant use of light and shadow, great graphics, lots of super sound effects*
- ***GAMEPLAY*** - *Once you get used to it a very effective method of controlling four warriors at once with the mouse*
- ***VERDICT*** - *An excellent D&D - big enough and hard enough to keep all D&D addicts occupied for a LONG time!*

HEIMDALL
Core Design £29.99

SHADOWLANDS
Domark £29.99

Reviewed by John Sweeney

MAKING MUSIC WITH YOUR ATARI



PRO-24

THE ORIGINAL BEST SEQUENCER?

John S Davison's regular guide

In the last couple of issues we've looked at what is arguably the finest piece of music software available on the ST, namely C-Lab's incredible Notator sequencer and score printing package. Before this appeared the professional musician's sequencer of choice was Steinberg's Pro-24. Steinberg eventually launched their Cubase and Cubeat sequencers to compete with C-Lab's products, at which point I expected Pro-24 to disappear without trace. However, several years on it still seems to be available albeit in limited quantities. And as it now sells typically for less than 25% of its original £285 asking price I thought it worth taking a look at here.

I bought Pro-24 V3 (the latest version) for £70 about a year ago from Soho Soundhouse in London (071-379-5148), and at the time of writing (early April) they'd still got some in stock. Various other music and computer shops advertise Pro-24 occasionally - you have to watch the adverts in magazines like Sound-On-Sound, Music Technology, and Music Mart to catch them. Alternatively, you can easily buy one secondhand for £50 or less - see the Readers Ads sections of the same magazines. After reading about Pro-24's superb facilities below you'll realise just what a fantastic bargain this is.

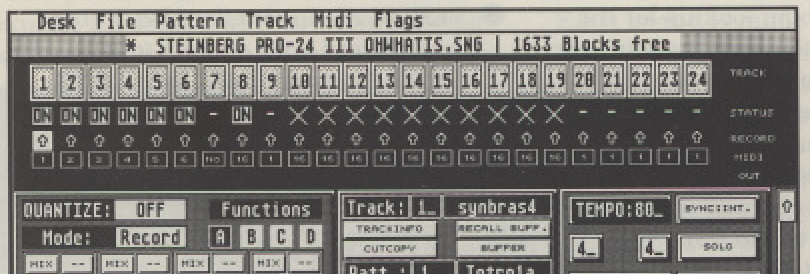
DONGLE REQUIRED

Pro-24 is supplied on just one double sided disk. It runs on 1MB ST(E)'s or larger, using medium or high-res displays. Earlier versions had poor documentation, but V3's nicely presented 186 page manual is fine. Also included is a security dongle which plugs into the ST's cartridge port. Pro-24 is USELESS without it, so if you buy secondhand make sure the package includes one.

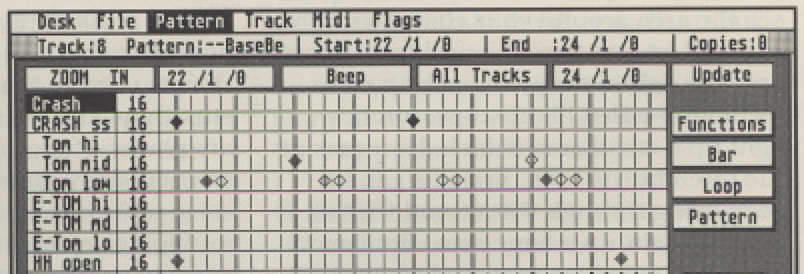
As you might guess Pro-24 is a 24 track sequencer, allowing you to record and play back up to 24 independent musical parts using MIDI equipped musical instruments. Like most sequencers it behaves like a multi-track tape recorder - you can independently record a musical part on any track while simultaneously playing back tracks already recorded. It also has tape recorder style transport controls for basic sequencer operations, and 24 bar graph style "level indicators" which jig around to indicate MIDI activity on each track.

Most of Pro-24's basic operations are mouse controlled from one main screen. Less frequently used facilities are accessed via normal pull down menus, and these may bring up ancillary screens. The ST's keyboard can also be used for control as virtually every function has a keyed equivalent. Another nice touch is that frequently used commands can be allocated to selected keys on your MIDI keyboard (ones you don't normally play, of course!) so you can remotely operate the sequencer without touching the computer. Overall, Pro-24's controls aren't exactly intuitive, but they do become easier with practice.

Pro-24 is pattern based, where a pattern is a subdivision of a single track used to hold a section of the music on that track. Patterns can be any length you wish, and different tracks can use patterns of different lengths where required. A complete song can be built up from these and although this scheme of working gives you great flexibility it also means you could have a large number of patterns to manage. This aspect is probably Pro-24's weakest point.



The main control screen with track selection



Drum editor - one of the nicer features

MULTI-RECORDING

Pro-24 provides a number of different ways of recording music into a pattern. The most straightforward is real-time recording, where you play your MIDI keyboard live as if making a normal tape recording. You can manually switch the sequencer into and out of record mode, or it can be done automatically using punch-in and punch-out points. "Cycled" recording is possible, which allows you to continuously loop around a chosen section of the piece re-recording it until you're happy with your performance. In addition a "multi-recording" feature allows you record patterns on up to four tracks in turn without stopping the cycle - great for creating complex drum parts. You can also separate signals coming in on several MIDI channels simultaneously, and record them on up to four different tracks.

If your keyboard skills aren't up to real-time playing you can use Pro-24's step-time facilities, allowing input on a note-by-note basis via the computer or MIDI keyboard. As well as creating music from scratch these facilities may also be used for editing existing music, including that played using real-time input. Notes can be inserted, deleted, moved, and copied; and duration, velocity, and MIDI channels set as required. Changes can be quickly auditioned by switching to playback from within the editor.

First there's a grid editor, which represents the music as a series of horizontal bars in a scrollable grid. There's also a scrollable MIDI event list displayed alongside it showing each MIDI message in the data stream (not just note messages). Facilities are provided for graphically editing the MIDI data by stretching and dragging the bars, or for numerical editing by changing the event list directly.

Pro-24 also has a score editor, which displays MIDI note data in standard music notation. Velocity data is represented by a vertical bar under each note, with height proportional to velocity value. It only handles one track at a time and uses a single or twin (piano style) scrollable staves as required. Notes can be added, deleted, moved, copied, or replaced using the mouse and onscreen controls. Durations can be finely adjusted as can velocities, the latter by dragging the velocity bar under a note to the required height. You can even print out your music, but this feature is very limited compared with something like Notator. It's better than nothing though!

DRUM EDITOR

One of Pro-24's nicest features is its drum editor, designed for easy editing of percussion patterns. Again it's grid based, with vertical positioning representing different percussion instruments (listed down the left side of the grid) and horizontal positions representing time (two bars worth of sixteenth notes). To create a drum rhythm you just click against the required instrument at the appropriate time position, with velocity determined by how long you hold down the mouse button. The feature is fully customisable so you can use it with virtually any drum machine or synthesiser, and once set up you can save the settings away for future use. It coped easily with the drum section of my Yamaha PSS-680 synth, and makes the sometimes tedious task of building rhythm tracks much more enjoyable!

Pro-24 also has a rather strange but powerful "logical edit" capability, permitting changes to be made to your music on a mathematical rather than a musical basis. You give it criteria which selects MIDI events of certain types from your music, e.g. notes between certain pitches, velocities, durations , or on given channels. Then you tell it how you want the selected events processed - you can replace pitch, velocity, duration, or channel data with fixed values, or apply a calculation to each of them for each selected event. The possibilities are endless for those willing to experiment!

Lots of track and pattern manipulation facilities are provided. Tracks may be erased; copied in whole or selected sections; have sections cut from or inserted into them; and pitch transposed or velocity modified by selected amounts. Patterns can be created; deleted; saved/loaded; split into smaller patterns; joined to form bigger ones; cut, to remove unwanted parts; extended, to add new material; repeated as many times as required; moved; and copied, either as a whole pattern or just a chosen part of it.

Various quantising facilities are available for correcting timing errors in your real-time playing. The oddly named "over quantise" is the normal one, but there are four other options which quantise note lengths without affecting the notes' starting positions. There's also an "iterative quantise" which moves the notes in small steps towards the selected quantise value each time it's triggered. Quantising is destructive, but can be undone by using Pro-24's recall buffer.

MASTER TRACK

Unlike some sequencers Pro-24 can easily cope with changes in time signature and tempo within a musical piece. They're handled by a special 25th track, called the Master Track, which can be set to show where new tempos or time signatures take effect, and what their values are.

The easiest way to use Pro-24 is in "tape mode", where you simply build up each track as you would record it on multi-track tape. A song with three verses and three choruses would have patterns for each verse and chorus placed along each track as required. However, Pro-24 also has a "sequencer mode" which permits you to record patterns for just one verse and one chorus then link them together reusing them as as necessary to complete the song. Personally I prefer using tape mode, but some people like the extra speed and flexibility of sequencer mode.

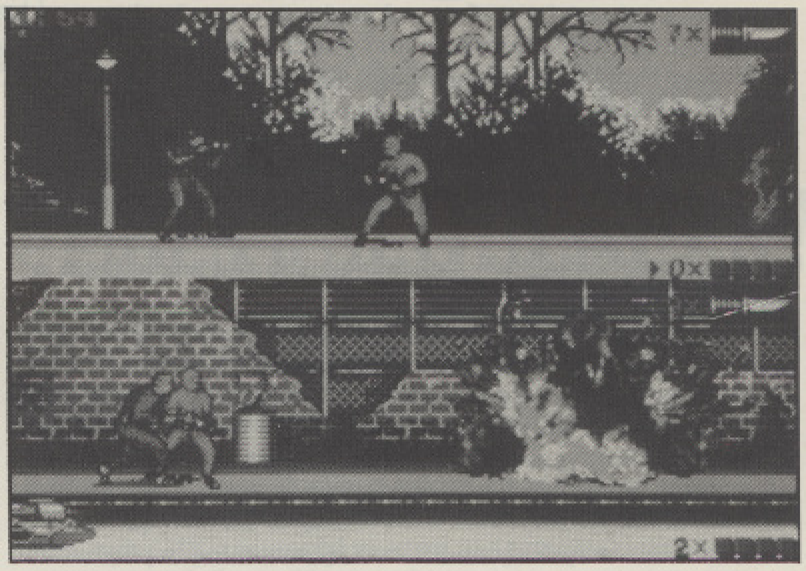
Like C-Lab, Steinberg also make accessory hardware (called Time Lock and SMP-24) for synchronising Pro-24 to a separate tape recorder. These enable you to run vocals and other acoustic recordings in sync with your MIDI tracks. However, they never implemented direct tape recorder control from the sequencer screen - they put it in Cubase instead!

Pro-24 supports MIDI standard file formats as well as its own internal format. It can import and export files in Format 0 and 1 and import Format 2 files. This means you can interchange files with any other sequencer supporting standard files - and also use the thousands of songs in these formats now available from PD libraries and bulletin boards.

Other useful PRO-24 features include input and output filtering of selected MIDI messages; track group muting; internal/external sync; song position pointer support; track mixing/unmixing facility for merging tracks together and splitting a merged track back into its components; and finally a System Exclusive Dump Utility for uploading/downloading banks of sounds to your synth. There are more, but I'm running out of space.

Pro-24 is a classic piece of music software, which thoroughly deserved the popularity it enjoyed a few years back. It's packed with useful features, offering virtually everything most MIDI musicians are ever likely to need in a sequencer. Don't forget it was designed for professional musicians just a few years ago, and at its current street price it's unbelievably good value for money. If you need a new sequencer make sure you check out this legendary package before it finally disappears forever.

ALCATRAZ



The year is 1996 and the American government has declared all out war on the drug cartel whose chief, a rather unpleasant chap by the name of Miguel Tardiez - referred to affectionately as 'Public Enemy Number One', is ensconced on the island of Alcatraz.

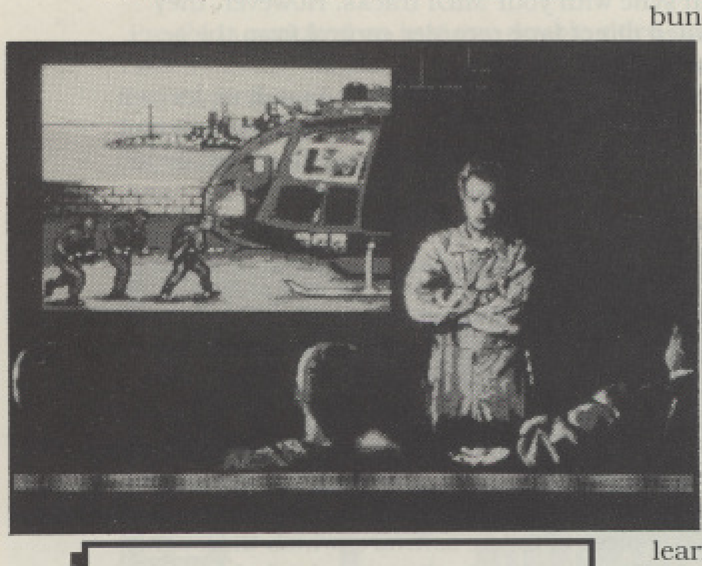
Now this poses a bit of a problem for the US government. Miguel is hiding in a big prison and they want to lock him up in an even bigger prison. But isn't he already in a prison? Well, seeing as he's a big bad public enemy he's gone and turned Alcatraz into a bit of a crime den. You know the sort of thing ... big luxury apartment, naughty girls, bad boys, the odd rocket launcher or two. Ah ha! I see ...

As you can no doubt guess, it is at this point that you come in. Yep! Seeing as it's a ludicrously difficult mission where the odds are stacked against you, who would be better? All you have to do is get in, shoot lots of people, pick up lots of power-up type thingies, swipe some papers, kidnap Mr Tardiez and get out. Easy peasy!

The game is actually designed for two players, giving you a split screen with player one at the top and player two below. However, for a bit of added interest, those lovable French chaps have introduced an option where you can alternate between both characters in the game to effectively work as a team if you're all on your tod.

Your mission in this horizontally scrolling 'run-along-and-shoot-the-baddies' romp, begins as you and your buddy jump out of your dinghy on the island. Initially you're just armed with a throwing knife (obviously you've come prepared) but after you've pounced on a few unsuspecting criminal types you can nick their weapons and go around shooting at people with a large machine gun. Not the most subtle approach, but it works!

This first bit of the game sets the scene for the next levels, but after a while you will stumble across a different style of play. Oh yes indeedy! Jumping into a dark and secluded doorway towards the end of each level allows you to whizz around a 3D maze type affair where you must explore a bunch of rooms searching for a briefcase containing important papers. Not the most original concept, but it does break up the tedium of the scrolly section.



Presentation wise the game initially looks a bit on the dull side. The impression achieved is very typical of games from over the water. You know what I mean ... all the French games have a certain style about them that sets them apart. Well this one is just like that, but is very bland at the same time! At first I thought that it looked a bit crumby, but I soon learned to appreciate the moody effect that it creates.

Sonically the game is definitely pretty super. Why is it that only the French bother to use sampled sounds and music eh? Why don't any of the English developers bother? From the tinkle of the tune to the crack of rifle fire, everything is sampled with crystal clarity. I'm definitely most impressed!

When considering how playable the game is, all I can say is that if you like this type of thing, you'll love it. To some, the prospect of playing a game where you plod along across a scrolling backdrop is not the most enthralling, but, if you enjoy a good blast where you need to use your noggin here and there, you may well have bit of fun!

"very typical of games from over the water ... a certain style that sets it apart"

Title:	**ALCATRAZ**
Publisher:	**Infogrames**
Price:	**£24.99**
Reviewer:	**John Davison Jnr**

- ***SIGHT AND SOUND*** - *Looks a bit dull at first, but you soon get used to it. The sound's excellent though. Check out the samples!*

- ***GAMEPLAY*** - *It won't appeal to a really wide audience, but it's still quite fun. If you've played Hostages you'll know what it's like*

- ***OVERALL*** - *Effectively this is just Hostages II. Seeing as the first game was so successful I can't imagine that this will fail. Pretty good stuff!*

Miles Better Software

Miles Better Software
219/221 Cannock Road
Chadsmoor, Cannock
Staffordshire, WS11 2DD
Telephone: (0543) 466577/8/80
Fax: (0543) 466579
Access & Visa orders accepted
Add £2.00 sterling per item for overseas airmail

Miles Better Software
39, High Street
Brownhills, West Midlands.
Telephone: 0543 373836
Shop Hours 9.30am - 5.30pm
Monday to Saturday

ARCADE

Parasol Stars	19.95
Pacmania	4.99
Sly Spy - Secret Agent	4.99
Scooby Doo & Scrappy Doo	6.99
Obitus	8.99
Killing Game Show	8.99
Barbarian II (Psygnosis)	8.99
Awesome	8.99
Lemmings (Original)	17.95
Oh No! More Lemmings	
Data disk	13.95
Stand alone	18.95
Robocod - James Pond II.	17.95
Paperboy	7.99
Robocop 3	17.95
Magic Pockets	17.95
VideoKid	17.95
R-Type II	17.95
Bubble Bobble	6.99
Flood	8.99
Turican II	7.99
W.W.F. Wrestlemania	17.95
Midnight Resistance	6.99
Robocop	6.99
Rainbow Islands	6.99
James Pond	6.99
Treasure Island Dizzy	6.99
Chuckie Egg	9.95
Dizzy collection	19.95

ADVENTURE/STRATEGY

Battleships	7.99
Kings Quest IV	12.95
Vulcan	9.95

ADVENTURE/STRATEGY

Omar Sharif's Bridge	24.95
Heidmall (1 meg)	22.95
Knightmare	20.95
Populous II 1/2 meg	20.95
Populous II 1 meg	21.95
Heroes of the Lance	6.99
Cruise for a Corpse	19.95
Midwinter II	22.95
Railroad Tycoon (1 meg)	24.95
Ultima VI	22.95
Hitchhiker's Guide to the Galaxy	7.99
Elite	12.95
Colossus Chess X	7.99
Shadow Sorceror	19.95
Secret of Monkey Island	19.95
Sim City & Populous	17.95
Another World	19.95
Realms	20.95
U.M.S. II	20.95
Wargame Construction Set	14.95

EDUCATIONAL**

Fun School 3 - u. 5 yrs.	17.95
Fun School 3 - 5 to 7 yrs.	17.95
Fun School 3 - 7 & over	17.95
Fun School 4 - u. 5 yrs	17.95
Fun School 4 - 5 to 7 yrs.	17.95
Fun School 4 - 7 & over	17.95

SIMULATIONS

A320 Airbus	24.95
Silent Service II	24.95

SIMULATIONS

Flight Simulator II	24.95
Their Finest Hour	20.95
Flight Sim II Scenery Disks	
Western Europe	12.95
Hawaiian Odyssey	12.95
F15 Strike Eagle II	22.95
F19 Stealth Fighter	20.95
ProFlight	27.95
Microprose Formula 1 Grand Prix	24.95

SPORT

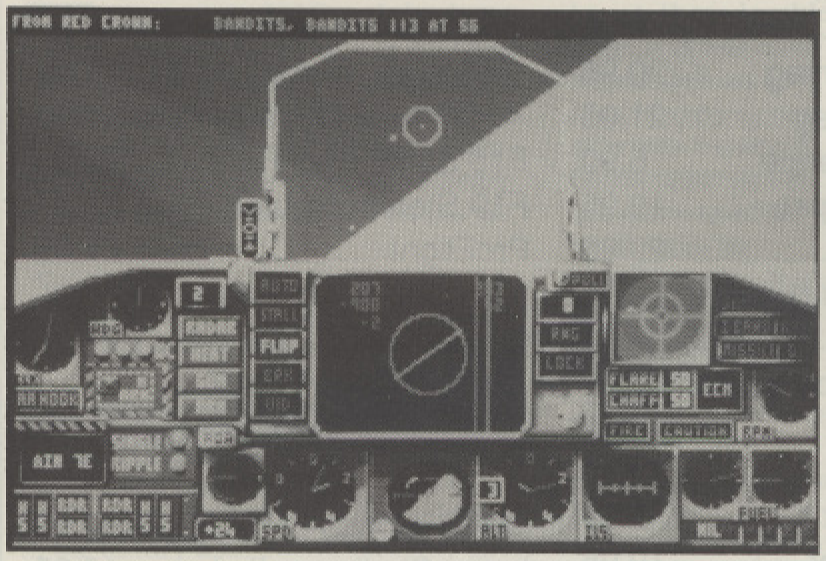
R.V.F. Honda	7.99
Lotus Challenge II	19.95
Jimmy White's Whirlwind Snooker	20.95
Kick Off 2	11.95
Microprose Golf	24.95
Greg Norman's Ultimate Golf	7.99

ACCESSORIES/UTILITIES

Timeworks Publisher 2	99.95
Easydraw 2	29.95
Quickjoy Megastar Joystick	19.95
Quickjoy Topstar Joystick	17.95
Quickjoy SV129 Footpedal	19.95
Atari CX80 ST Trak-Ball	14.95
Stereo Master	29.95
Zydec External 3.5" Disk Drive	54.95
Zydec External Speakers	32.95

**** - Information readily available, ask for details. E & OE.**
Orders welcome by post, fax, telephone or in person. Access and Visa both welcome. Please make cheques/postal orders payable to 'Miles Better Software' and, if possible, give your telephone number when ordering
All prices include VAT @ 17.5% and delivery is free in UK.
All goods are inspected prior to despatch. Prices correct at time of going to press
Please direct any enquiries for the attention of Fred or Wayne. Thank you.

FLIGHT OF THE



"Why the hell am I doing this ?" you think, as your heart begins pounding and your mouth suddenly feels like it's lined with sandpaper. But before you have time to ponder further your attention is caught by the Catapult Officer signalling "full throttle". You push the throttles wide and your A-6 Intruder's engines scream up to full pitch and the whole aircraft trembles from their fury. Your breathing becomes rapid and the sweat runs down your forehead and into your eyes, damn it! You blink it away, put your head back against the headrest and signal the launch. You're knocked breathless as the catapult fires and hurls you, your Bombardier/Navigator, and 28 tons of Intruder from zero to 145 knots in 2 seconds. Once more you're leaving the safety of the carrier's deck - bound for targets in North Vietnam!

So begins another mission in Spectrum HoloByte's latest flight combat simulator "Flight of the Intruder", which simulates A-6 Intruder and F-4 Phantom flight operations in the Linebacker campaign of 1972 in the Vietnam War.

The package includes a paperback version of Stephen Coonts' novel after which the program is named. I found it very helpful to read this before using the program (if you can bear to wait that long!), as it helps set the scenario for the simulation. Also, aircrew members flying with you in the simulation are characters from the book, which helps add extra "realism" and atmosphere.

Also included are two double sided disks (with single sided versions available from the suppliers if required); a reproduction of an actual map used by a pilot on Vietnam missions; and a 214 page ring bound flight manual. This contains a mine of information about flying in the Vietnam War, as well as the program's operating instructions.

TWO PLAYER OPTION

I used a 1MB STE for the review, but Intruder will run in 512K memory if necessary. 1MB is recommended though, as several extra features then become available. For instance the graphics are better in side and rear views from your cockpit, more sampled sounds are used, a "video replay" of your actions can be run, and you can even link together two ST's (using a null-modem cable) for two player operations.

Intruder is very similar in principle to most other flight combat simulators now available, but it does have a few unique features of its own. As with most other programs of this type you start by logging yourself into the simulation and giving yourself a name. You can assume this identity each time you use the program, or use other names if you wish. The program records the progress of each named person on the "Sierra Hotel" board - otherwise known as a high-score table.

You then choose the type of mission you want to fly and attend a mission briefing, where you're shown photos of your targets and given the latest intelligence information about them - and nearby enemy activity. You can also arm your aircraft with appropriate ordnance from a wide range of different bombs, missiles, and other items of aerial warfare. When ready, you're catapult launched from the deck of the USS Shiloh, an aircraft carrier based at Yankee Station many miles offshore in the Gulf of Tonkin. All you have to do now is navigate to the target, achieve your mission objectives, and get safely back onto the carrier's deck! Hmmmm - easier said than done! Success earns you medals, promotions, and points for that Sierra Hotel board.

> ***" Your breathing becomes rapid and the sweat runs down your forehead "***

BOMBER OR FIGHTER?

There are three simulation options. You can elect to fly regular operations as an A-6 Intruder crew; ditto as an F-4 Phantom crew; or act as a Commander Air Group. There are thirteen different operations to choose from, each of which can consist of several different Intruder and Phantom missions. In fact there are 17 for the Intruder and 18 for the Phantom, and for each you can set difficulty levels by changing various simulation parameters. For example you could give yourself unlimited fuel or weapons, restrict enemy activity, or alter the accuracy required to destroy the targets. The missions range from combat air patrols above Yankee Station; through taking out torpedo boats; bombing bridges, ammunition dumps, airfields; to "Wild Weasel" raids to suppress SAM sites. So, there's enough to keep you interested (and busy) for a long time!

Intruder's unique feature is that you're not fighting the war alone. You fly as part of a contingent of up to eight aircraft, organised as four flights of two Intruders or Phantoms, each with their own part to play in a raid. You could be on a bombing mission and see Phantoms protecting you from enemy MiGs, or Intruders attacking SAM sites to smooth your passage to the target. Or you might find yourself protecting an Intruder while it drops its lethal cargo onto some unfortunate piece of North Vietnam.

INTRUDER



Moreover, if you have a 1 megabyte machine you can switch to any participating aircraft at any time and take over control, so you can always be in the thick of the action - wherever and whatever it may be! With a 512K machine you're limited to just Phantoms or just Intruders in one operation, you can't move from one type to the other.

BE THE BOSS!

Choosing the Commander Air Group option puts you in charge of operation planning. This involves selecting the operation's primary and secondary targets; working out the best route; waypoint selection; aircraft selection (Phantom or Intruder); aircrew selection from the list of available crews, each with different levels of experience, fatigue, and competence in dogfighting, ground strike; and Wild Weasel missions; and allocating separate missions to each aircraft. You also have to determine the timing for the different aircraft involved - for instance you want to ensure the Wild Weasel attacks on SAM and AA sites take place just BEFORE the bombers get near them. Finally, you can save the mission details on disk for later reuse, before flying the operation.

CONTROLLERS

Your aircraft can be controlled in several ways, using the ST's keyboard, mouse, ordinary joystick, Gravis MouseStick, or even one of those hideously expensive Aerochopper controllers. Sensitivity to control movement can be adjusted to your liking, but I still found control wasn't really precise enough for easy, accurate weapon delivery. Matters are improved slightly by changing the level of scenery detail displayed (via the menu options). Less detail results in faster screen update and hence slightly better control.

The program's graphics are reasonable, but not outstanding. I liked the aircrafts' control panel displays, although the instrumentation could do with more detail. Some of the instruments have little in the way of calibrations on them, e.g. the compass shows only N, S, E, and W. Also, I wasn't very keen on having to scroll to a second screen to operate the Intruder's weapons selection controls - although in real life this would be handled by the second crew member - the Bombardier/Navigator.

At maximum detail setting the external scenery shows the usual 3-D graphical representation of roads, rivers, airfields, buildings, etc. All the expected viewing options are available too, so you can keep a good lookout all around the aircraft for enemy activity. You can also view your aircraft from any angle from the outside, take a view from a tracking aircraft, or a "satellite's eye view" from above, or view your home carrier, the USS Shiloh. Oh yes, there's also the mandatory "missile's eye view" of course, if you insist on riding your missiles to their targets!

INCLEMENT WEATHER

The Intruder is an all weather aircraft, and operations in inclement conditions may be simulated. This results in a "hazy" look to the scenery and a continuous cloud layer at altitude. Climb up through the murk and you burst into sunlight under a brilliant blue sky. You can also simulate night missions if required.

The program makes some good use of sound in places too. Sampled sounds are used for engine noise and various other sound effects, such as radio chatter. The latter does become a little annoying though, as you can't actually make out what's being said and the same sample seems to be used all the time. The actual message text is displayed onscreen anyway, and you can turn the radio sound off if required.

There's no doubt the program is loaded with features, only some of which I've mentioned here. Features alone don't make a good simulator though, and in fact I was mildly disappointed with Intruder. For me it was spoiled by its control system, as I found it too imprecise when trying to line the aircraft up with targets. The program also has a few annoying design quirks, like having to switch screens to select weapons, and switch to an external view to change a waypoint.

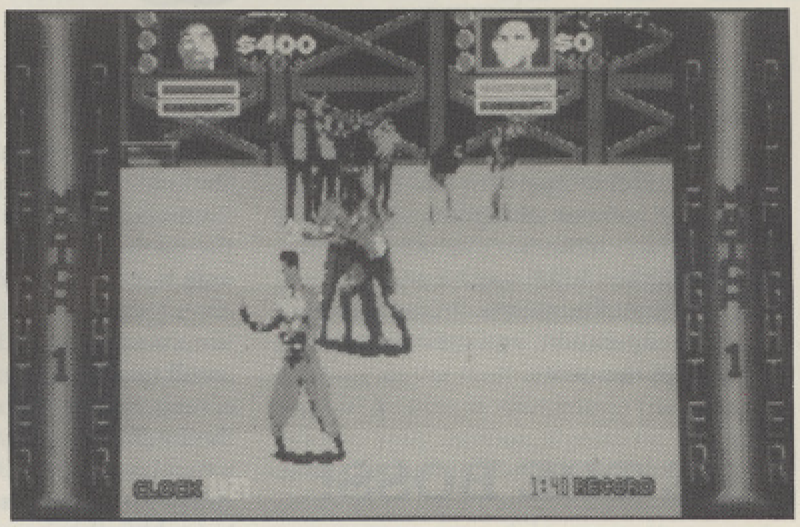
Overall it's a good flight combat simulator spoiled by a few niggling faults. For me its attraction lies more in the historical interest, as it gives you an idea of what Intruder and Phantom flight operations must have been like in the Vietnam War. This is particularly true after reading Stephen Coonts' novel - assuming that the book itself is accurate, of course. Naturally, the program can't communicate the sheer horror of that terrible conflict, but the book fills in at least some of the gory detail. So, I give it a qualified thumbs up - after all I still enjoyed it!

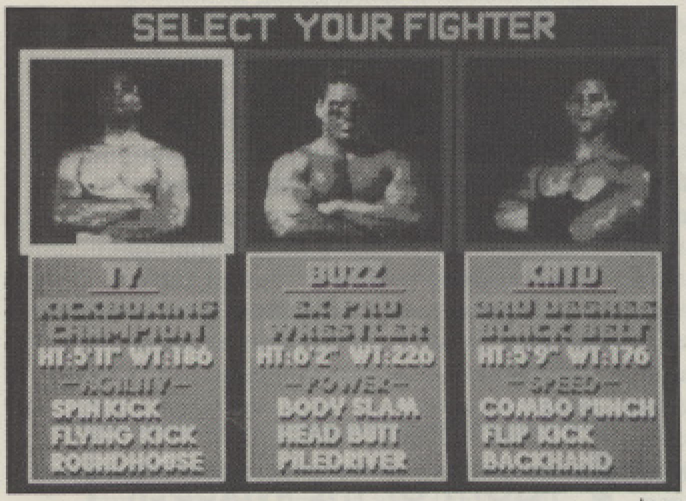
FLIGHT OF THE INTRUDER
Mirrorsoft/Spectrum HoloByte
£34.99
Reviewed by John S Davison

PIT FIGHTER

Shades of Jean Claude Vandamme came echoing to me through this box set. The game is set in a slightly forward future in an underground existence of a no holds barred wrestling arena. It is up to the players (there can be one or two) to win their way through the ranks to become the ultimate hard man by beating the Ultimate warrior himself. The game shows that it has a great deal of pedigree with its packaging, for although a well-known coin-op hit the software comes with a souvenir programme and a fairly comprehensive instruction set. It is this sort of packaging and backing that makes Tengen one of the more successful converters in the field. There is even the offer of T shirts that remember the tour. This is a game that has been produced with a certain sense of humour and style.

The players choose one of the three newcomers to the game who are depicted in strong mock sample graphics, each with a collection of special moves and advantages. These fighters are: the Asian Kick boxing Champion Ty with his spin kicks, flying Kicks and roundhouse punch, who is fairly brittle but very fast; Buzz the pro wrestler with strength and power but lacking some speed, using his body slam, head butt and pile drivers and finally Kato the Karate/Kung Fu expert with an array of Bruce lee style effects. He is fast but even more brittle than Ty.





Title:	**PIT FIGHTER**
Publisher:	**Tengen/Domark**
Price:	**£24.99**
Reviewer:	**Damon Howarth**

The players are controlled by a multitude of joystick movements, which can lead to some commands being misinterpreted. More than once my poor pawn turned his back on the opponent rather than execute a special attack. The fighters also have the option of picking various items up from the floor to throw at their rivals. Some such would be knives, crates, kegs and eventually motorbikes!!

Each round of fighting has a purse attached to it and at the conclusion of each successful bout the player receives prize money together with brutality bonuses and speed of win bonuses. These are graphically displayed by the fork lift truck that lifts you up for the adulation of the crowd. The graphics seem to have been ported and edited from another machine, I suspect a PC but all the same they are effective, well drawn and react well to the commands from the joystick.

Every third round is a free-for-all in which the last one standing wins the pot. This really boils down to being a bonus screen with a random fighter attempting to knock you over three times.

Perhaps at this stage some idea of the opposition would be fair. The easiest member of the bad guys to beat is The Executioner, basically a big slow strong type. If the player can dance around him then speciality blows will win the game quite quickly. Not a great deal more difficult is the polite and philanthropic Southside Jim, somewhat faster but with less brute power allows you to fight head to head without the player losing too much strength. The female of the group, Angel, is dangerous fast and lithe. Although she is not strong she picks up items and uses them to great enhancement, a dangerous opponent and one to whom the odd life will fall. The next three are all in the different degrees of strong and fast basically offering a great deal of punishment until the player masters his individual fighting style. The furthest I progressed was Chain Man Eddie the second rated opponent who could absorb damage like a masochistic sponge and deal out damage like a bull elephant! One day I will get a crack at his boss but I cannot offer advice or thoughts above number two man.

The game plays with a great deal of black humour and relies on the effects and the artwork to maintain it's impact. I somehow doubt it would feel quite so atmospheric and exciting with little stick men trying the moves. There is also an air of personalisation about the game. A player can become quite engrossed in his fate and some of the opponents can actually become grudge matches. Personally I disliked C. C. Rider since my guys found they could not outmanoeuvre his throwing antics.

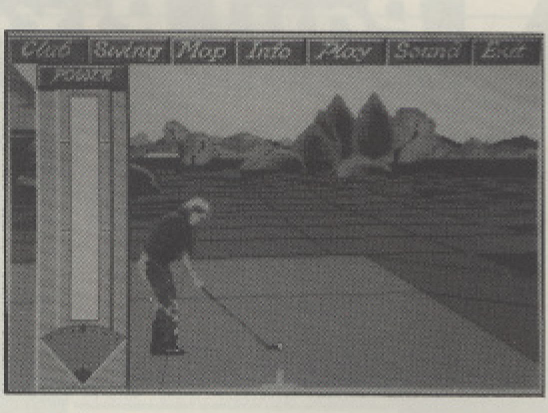
This is a martial arts game with a touch of class. It feels like the Van Damme films and even slightly like the Every Which Way movies. Sadly there are no Clydes to assist you but the characterisation of the players is strong and leaves room for motivation in the actual players.

I am actually sorry to have to return this game I found it offered a pleasant release after hard frustrating days at work, just the thing for digesting Christmas dinner with! I certainly suggest that Martial Art fans look at this.

- ***SOUND AND GRAPHICS*** *- loud and smooth, the Warrior even speaks*
- ***GAMEPLAY*** *- normally well behaved, quite addictive although some waits for disk loading*
- ***OVERALL*** *- well packaged and worth seeing, buy it and enjoy*

ST File

ULTIMATE GOLF



A budget golf game, there's a novelty! This game was originally released about three years ago and at that time was considered to be state of the art. In those days it was competing with such old time classics as Leaderboard and it deserved its accolades. Today as a budget game it still has some appeal, although the presentation now looks decidedly aged.

On starting the game many of the niceties of golf games are presented. Options for club selection and standard of play are, of course, mandatory and the options for having weather effects or not is helpful for beginners. The game plays from the perspective of the player and allows the club selection to be varied and angles of swing to be altered. The game has many of the facets of current games, even the names of players are databased to allow the player to monitor their progress.

The play of a shot bears a great deal of similarity to Leaderboard insofar as the mouse button activates the power meter and the swing meter. In theory this allows the player to make variable strength shots with allowances for wind strength and direction. These playing mechanics are strong and make a playable game. Sadly the graphic quality of the game leaves a little to be desired.

Even if the age of the software is allowed for the quality of the course is poor. For some reason the programmers saw fit to have the whole course divided into squares thus giving the impression of driving into a chess board. This is both distracting when playing and also makes any involvement in the game that much harder. Although I would agree that a grid on the green can prove advantageous, I can see no point in grids across the fairway or even in the rough. The squares also make the perspective on the course most peculiar and some optical illusions are available around the game.

It is most disappointing to see a game that shows such a great deal of golfing entertainment slip up on the graphical style but sadly that is one of the main parts of any golf simulation. I enjoyed the interface but could not live with the square board style of course. Have a look yourselves it may not worry you as much.

FACTS

Title:	**ULTIMATE GOLF**
Publisher:	**G.B.H.**
Price:	**£9.99p**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

The sound was not too memorable but was adequate, the sprites were fine the course was not

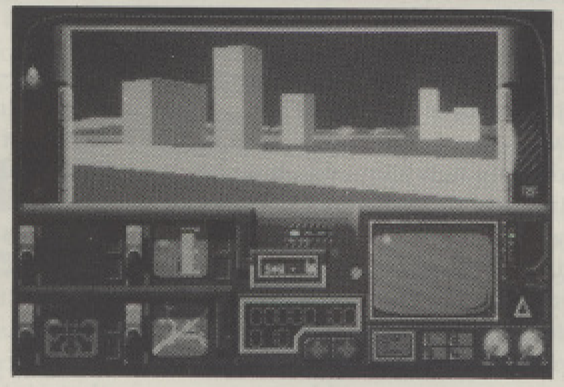
GAMEPLAY

Wonderful controls and good support from the manual, but those SQUARES!!!

VERDICT

Not a bad game. There are far better versions at the full price end of the market if you want to pay twice as much

RESOLUTION 101



FACTS

Title:	**RESOLUTION 101**
Publisher:	**G.B.H.**
Price:	**£7.99p**
Reviewer:	**Damon Howarth**

SIGHT & SOUND

Both complement each other, very strong graphical content

GAMEPLAY

Smooth but needing some practice to ensure good results

VERDICT

When it was new it was good now it is budget it is unmissable

This is a thinking man's 3D shoot em up and still well worth the effort of getting to know. The player takes the role of a convicted criminal in futuristic America. The area is over run by drug dealers and their violent henchmen and thus by virtue of Resolution 101 you, the criminal, will be given a chance of redemption if you stop these people.

The game oozes the class of a masterpiece. The window shows the view from the vehicle you drive complete with the communications devices that are so necessary to special police such as yourself. The premise is that you have received a five lives insurance policy from clone makers and thus the restart problem is avoided. It is possible to load and save positions and even upgrade the weaponry at suitable intervals.

The use of digitised graphics to display the bad guys and your chief adds a realistic touch to the futuristic comms panel in front of you. There are sound effects and music tracks that keep the game moving with a good audio stimulation and the use of filled 3D graphics in the style of Elite adds a touch of early virtual reality to the concept. The easy acceptance of the control modes makes the craft a pleasure to fly.

In order to progress in the game it is up to the player to shoot and destroy drug runners and collect their canisters thereby obtaining cash bonuses and scoring points. Every so often the gang bosses themselves will appear and it is possible to make even larger profits. Even the bad guys have insurance though so it is necessary to despatch them three times in order to bring them to their final justice.

This is a game with a great deal of action and an eventful turn sequence. Even the sky goes dark and issues forth with lightning just before the bad guys make their play. There has been great attention to detail in the game and it certainly deserves its second chance in the market place. This is a good value budget game that I would be happy to recommend since it combines a strong shoot em up with a fairly effective driving game. One game that does pass the test of time.

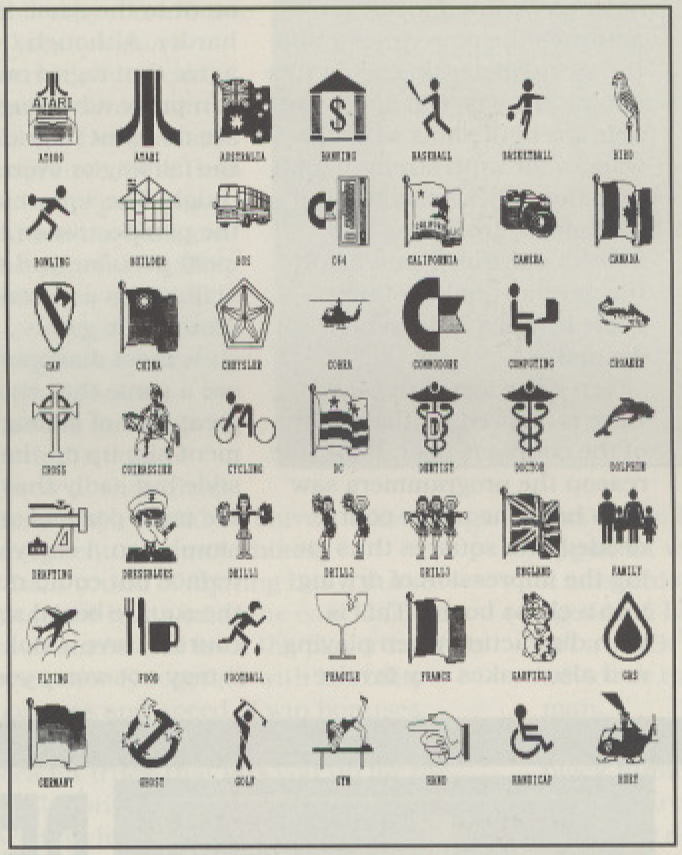
PD WORLD

Paul Rixon's

When computers were first introduced in the office work-place, they were justified by the notion that their presence would eliminate the need for so much paper - a paperless office was 'just on the horizon'. Then along came the printer... Anyone who works with computer systems today will know that they are seemingly insatiable consumers of paper. While theory suggests it's possible to manipulate text within a word processor before printing out a single final copy, the reality is that the mere presence of a printer is an invitation to 'see what it will look like' ... with every minor alteration! Printers are increasingly more affordable and able to produce a high quality output - their usefulness is only limited by the software available to drive them. In the Public Domain there are numerous utilities and applications of interest to printer users, just a few of which are the feature of this issue's PD World.

PRINTMASTER

Unison World's Printmaster has achieved an enthusiastic following among ST users, just as Broderbund's Print Shop was a massive hit for the 8-bit Ataris. The common functionality of these programs is the construction of posters, cards, banners and other printed stationery using predefined icons (or pictures), fonts and border designs. Owners of Printmaster (or Printmaster Plus) can further expand the variety of possible designs using files from the **PRINTMASTER COMPANION 1, 2, 3** and **4**. The first disk contains literally hundreds of new icons and dozens of new borders to add to your existing collection. The second disk has many, many more plus several related utilities. The Icon Program Utility will let you transfer graphics from Printmaster to Degas format, and vice versa. This means you can import the pictures as clipboard files into Publishing Partner or other DTP programs.



Just a few of thousands of Printmaster icons available

With so many new icons you may be wondering how to keep track of them all - the answer is to use the Printmaster Cataloguer. This prints an alphabetically sorted catalogue of icons, seventy per page, with a contents list. You can view the output on your monitor or dump it to an Epson or Atari compatible printer. With almost five hundred icons in each of the third and fourth Printmaster companions, these disks are an invaluable supplement. If you use Printmaster, try not to be without them!

GOT AN NEC?

Some disks are aimed specifically at the users of a particular make of printer. No prizes for guessing who might benefit from the **NEC UTILITIES**! This is a typical collection of goodies. Firstly there's a patch for the Alt-Help function so that screen dumps can be made on an NEC P5, P6 or P7 printer (presumably others too). It lets you choose the size of the dump, from a tiny square to a large sideways poster. The Epson Emulator introduces a myriad of possibilities, by enabling you to obtain print-outs from those applications that don't have a specific NEC driver. Elsewhere on the disk you'll find a printer set-up program and a custom downloadable font designer. Unfortunately, most of the programs (and the instructions) are written in German so a fair amount of experimentation will be required. Still, if you own an NEC it will surely be worth the effort!

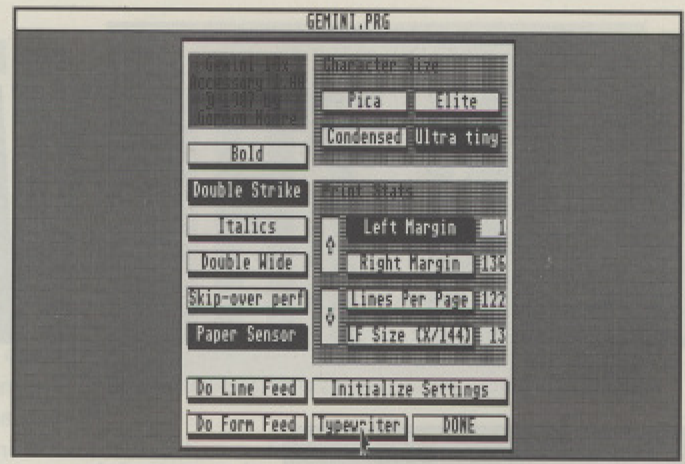
.. A LASER?

If you're lucky enough to have your ST connected to a laser printer, the Public Domain is an excellent source of practical assistance. **LASERBRAIN EPSON EMULATOR** is the essential acquisition for users of the Atari SLM804 laser, which would normally require a unique driver to get along with popular software applications. Once Laserbrain has been installed as a desk accessory, it intercepts all output to the printer port and redirects it to its own buffer. Here it's converted from the standard Epson codes into a format that's appropriate for the Atari laser. It can also make certain enhancements, such as enlarging or reducing the overall size of the graphic output. There is full support for the Alt-Help screen dump routine. The program originates from Germany but comprehensive English instructions are supplied on the disk, which is rounded off with some fonts and drivers for the packages Wordplus and 1st Word.

.. OR A LASERJET?

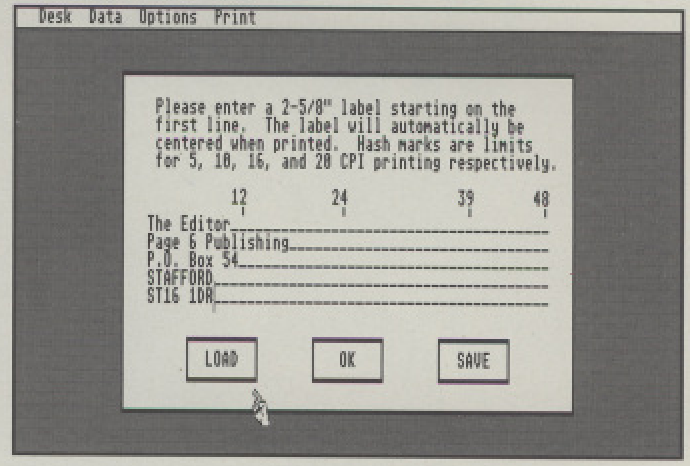
HP Laserjet users haven't been forgotten. Just take a look at the **HP LASERJET UTILITIES** disk! Envelope.Acc allows you to address and print en-

velopes from within any program (such as your word processor) providing it has access to desk accessories. After calling the Envelope routine you are asked to enter your own address and the recipients address, each comprising up to six lines of forty characters. Feed an envelope into your printer, select 'Print' and hey presto! Meanwhile Jet Label is a laser-label printer that specialises in printing data on multi-column sheets of labels - an ability that seems to be lacking from many ST applications. The label text, from one to five lines, is automatically centred. Different pitch sizes can be used. Since the program utilises the HP command set, it should be compatible with the Deskjet, Deskjet Plus and other printers that use it. You can enter the data from an ASCII file (output from your database, perhaps) or individually via the keyboard. Finally, Pretty Print is a simple utility that prints any textual file using soft fonts with your laserjet. Soft fonts are those that are loaded into your printer and therefore contain a complete description of how each letter will appear when printed. Once a font is loaded you can print files using the normal text printing commands, so there's an obvious speed advantage over the graphics mode techniques of most DTP software. Two fonts - Camelot and Candy - are supplied on the disk. A hint for HP Deskjet owners is to check out **HP DESKJET UTILITIES**. This has a similar content to the Laserjet disk - there's an envelope printer, a disk directory lister, various drivers and fonts and a boot configuration program. I can't say for certain if they work, but they do look useful!



Left - Full control over your Gemini printer from the desktop ... similar programs are available for most printers

Below - Printing one off labels can be a breeze with the right program



SOME GENERAL UTILITIES

No matter what kind of printer you own, you're certain to find something of interest among the **PRINTER UTILITIES**. First up is AW_Preset, a program (or desk accessory) that lets you set the many attributes of your printer. Unlike other utilities of this kind it doesn't make any assumptions about the attributes you might want to set or the way in which you might want to set them. This means it can be used with ANY make of printer, providing you know the necessary codes to define a table of possible options. The program reads this table and automatically builds a series of drop-down GEM menus to help you select the features you want. There are ready-made tables included for Panasonic, HP and Oki printers plus full details of how to construct your own. ScrDmp24 is a replacement for the Alt-Help screen dump function. It's intended for 24-pin models and takes full advantage of the improved print quality, unlike Atari's standard offering. You can change the scaling and optionally send the output to disk. You can also choose either landscape or portrait formats and save the initial defaults into a boot-up configuration file. The Penultimate Printer Setter Upper is another utility that's used to establish the various settings for your printer, but this time it's for Epson compatibles only. You can choose almost any combination of fonts, line spacing, page sizes, margin settings and other features offered by your printer. There are two related programs - one to select the printer settings and create a defaults file, the other to switch between multiple default files on a single disk. Rounding off the Printer Utilities disk you'll find even more printer set-up routines, specifically for owners of Star NB24-10, Gemini 10x and Panasonic 1091i hardware. The Gemini options include an 'ultra tiny' print mode that somehow manages to cram twice as much information onto a page as standard condensed printing. I discovered this worked perfectly with my Panasonic 9-pin printer.

A NEW CATALOGUE

There are literally hundreds of disks in the Page 6 ST Library and they've all been thoroughly tried and tested to ensure they meet the demanding standard required for acceptance. If you'd like to find out more about all of the disks currently available, you'll be pleased to know that the new Page 6 ST Library Catalogue has (at last!) arrived. This sixty-page booklet contains a full description, details of system requirements and a byte count for every disk in the library. It's divided into topical sections (in a similar style to the regular library updates) and is indexed on both names and reference codes. When you buy the catalogue you also get a copy of the PAGE 6 CATALOG DISK, and a voucher that you can use to claim back your money when you order your first three disks. The good news doesn't end here, as the price of PD has now got even cheaper (what happened to inflation?). If you buy five or more standard disks you can now claim the specially reduced rate. There's never been a better time to explore the PD World!

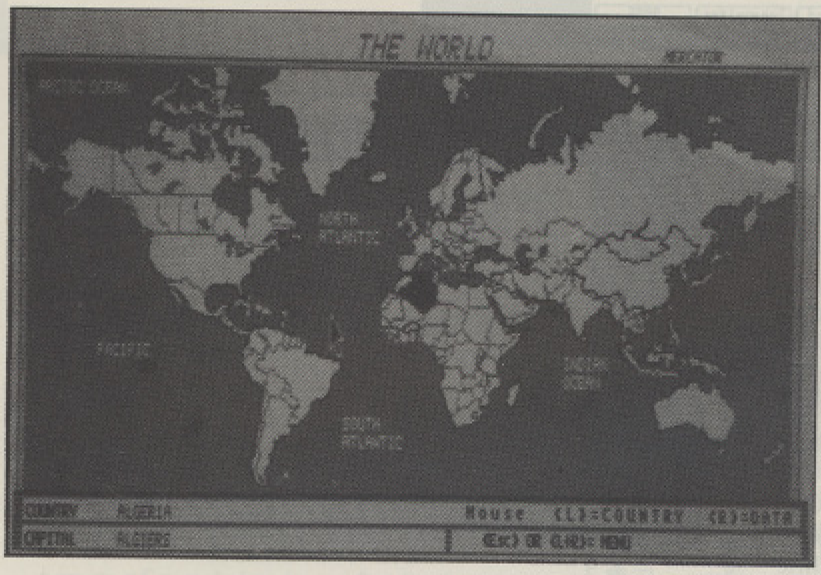
HOW TO GET THEM

The disks featured in PD World can be obtained from the PAGE 6 ST library. When referring to a specific disk, please use the unique reference code for identification. A printed catalogue describing all the library disks in detail is available from PAGE 6 at a cost of £1.95, refundable against the first few disks ordered. This includes a copy of THE PAGE 6 CATALOG DISK, which is otherwise priced at £1. Disks featured this issue are:

ST140 - PRINTMASTER COMPANION 1
ST141 - PRINTMASTER COMPANION 2
ST215 - PRINTMASTER COMPANION 3
ST216 - PRINTMASTER COMPANION 4
ST317 - LASERBRAIN EPSON EMULATOR
ST380 - NEC UTILITIES
ST338 - HP LASERJET UTILITIES
ST339 - HP DESKJET UTILITIES
ST481 - PRINTER UTILITIES

Prices for standard disks are £2.95 each or £2.50 each for five or more.
Write to PAGE 6, P.O. Box 54, Stafford, ST16 1DR
Telephone 0785 213928 or FAX 0785 54355 with credit card orders

WHERE IN THE WORLD?



This educational program originates from Canada, but is sold in the UK by Gralin International who advertise regularly in this magazine. It's unusual in that it's aimed at a much older age group than most educational packages - no age guidance is given, but I can imagine it being used by virtually anyone with a general interest in world geography.

It was developed using the Maps and Legends utility package from Antic Software (remember them?). It's supplied on one double sided disk, with a single sided version available on request if required. It runs on 512K ST(E)'s or TT's in either medium resolution colour or high resolution monochrome. The package also includes a helpful 20 page instruction booklet.

Basically it's an electronic world atlas, but its potential goes much further than this. It contains maps and details of countries in Europe; the Middle East; Africa; North, Central, and South America; plus a World Overview. The USA and Canada are also covered at the individual state level, each of which is then treated like a separate country. It's possible to select a country/state on the map using the mouse and then list various facts about it. These include details on its capital, population, languages, religions, and statistics on health, education, wealth, and other topics. You can even listen to the national anthems of 30 of the countries!

You can also store your own data in the program's database, either by modifying the original data fields or adding completely new data. Up to four entries each of up to 17 screens of notes can be added for each country, either keyed in directly or imported from a word processor in ASCII format. You can even add your own DEGAS format pictures to supplement the text.

A QUIZ

The program also has a number of quiz and data comparison facilities. The quizzes ask you to locate countries on the map using the mouse, given either the country name, the name of its capital, or just facts about it from a chosen data category (e.g. population).

The "comparison" facilities operate on the numerical fields in the database, allowing you to obtain answers to simple "size" questions, such as which country has the largest population, or the smallest defence budget. You can then quickly access all the other data about that country, once identified. There's also a "search" facility, which allows you do things like identifying all countries in which French is the main language, or all countries which spend more than 5% of their GDP on defence.

You can also ask for comparisons between countries based on a chosen numeric data field, either as one country against the rest, or all countries against each other. The results are presented in two forms, either graphically as a map with each country shaded depending on the value in the chosen field; or in tabular form where each country is listed along with the chosen data. The table can be sorted alphabetically by country or numerically by data value. For instance, you could produce a list of all the countries in Africa by population size.

If this isn't enough for you the instruction booklet also lists three accessory disks for use with this program. The first contains additional maps of the Middle East; Eastern Asia and islands of the South East; the Caribbean; and Australasia. The second contains the national anthems of every country in the world. The third one is a "construction set", allowing you to import your own DEGAS format maps and create associated databases to use with them. This makes the basic program completely open ended so you really can modify it to suit any purpose.

ZOOM IN

The maps only show country outlines - don't expect to see cities, rivers, or other such geographic details marked as there aren't any. Even so, the graphics are still fairly detailed and are sometimes difficult to see clearly using a TV, although they're fine on colour or monochrome monitors. The latest version of the program includes a zoom function, which enlarges any chosen section of the map making the smaller countries easier to see. If there's enough free memory the world map screen also includes an inset of a rotating world globe.

Use of sound is limited to a chorus of "Around the World" on the program's title screen and those national anthems. Incidentally, you only hear a few bars of each anthem, not the whole thing. The music is pleasantly handled using multichannel chip sound though.

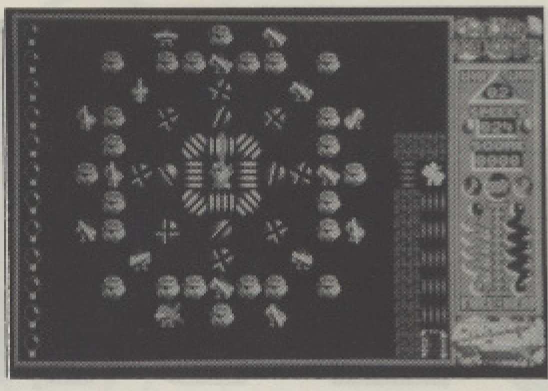
In summary, this is a neat little program for those interested in world geography, and the fact that you can modify its contents to suit your own purposes widens its appeal further. The review copy did exhibit the occasional bug or two, but these didn't really detract from its appeal. Overall, I liked Geography Tutor and consider it good value for money.

GEOGRAPHY TUTOR

Gralin International
£12.50

Reviewed by John S Davison

MINDBENDER



Mindbender is a game with a totally different slant to any other I have seen. The game seems to have had some success in the U. S. and according to the box blurbs great success on the Amiga over here. It is one of those games that sounds simple but becomes most complex in play. Simply put it is a matter of diverting beams of light or magic through various staging posts by the imaginative use of refractive shields held by courageous gnomes. Once the story that accompanies the game is read the reasoning becomes quite clear.

The great wizard McDuffin has discovered that magic spells follow the rules of light refraction and thus intends to revolutionize spells with his shooting round corners ability. Sadly if the refraction is wrong the power generator suffers immense feedback and explodes removing the wizard, castle, helpful gnomes and all. This premise sets the tone for a difficult one or two player game that contains a great deal of whimsy amidst its brain teasing.

The game allows you to name teams for subsequent league play and maintains the high scores for the same end. It is possible to edit levels in the game managing to keep the novelty stretching further still. There seems to be a perverse sense of fun in placing gnomes with mirrors in the path of hurtling death rays only to see them splatted from behind since the reflective wall was forgotten. It is a necessity to use forethought in the game as the "suck it and see" method becomes doomed to failure after the early levels since there is just not the time to adjust mistakes as the power feeds back on itself.

Sonically the game is adequate and does not distract the player from his concentrations. Perhaps the only bad point is that it uses such small graphics. Had the sprites been larger then a touch of cartoon effect may have been achieved. This may have reduced amount of mirrors and obstacles but would improve its immediate attention grabbing potential. The screens are busy, at times reminiscent of a manic pinball table, and leave the user with the threat of eyestrain from excessive play, but I liked it!

FACTS

Title:	MINDBENDER
Publisher:	G.B.H.
Price:	£7.99
Reviewer:	Damon Howarth

SIGHT & SOUND

What sound there is is adequate and supportive, the graphics are too small albeit colourful

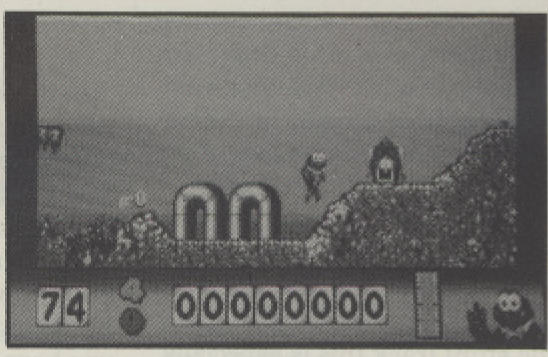
GAMEPLAY

Challenging and easy to control, only slightly marred by the smallness of the sprites

VERDICT

Originality abounds and it is well worth working at this game to get the best out of it

JAMES POND UNDERWATER AGENT



FACTS

Title:	JAMES POND
Publisher:	G.B.H.
Price:	£7.99
Reviewer:	Damon Howarth

SIGHT & SOUND

Spot FX fine although the music is weakish, the graphics make up for it all though

GAMEPLAY

Smooth, funny and responsive, no problems at all

VERDICT

Buy it! Buy It! buy it!

I make no apologies for reviewing this game again, it is probably one of my all time ST favourites. Like his namesake 007 this is a secret agent whose exploits can bear repeating many fold. The release of this at budget price the sam time as the sequel Robocod should not be seen as competition as they are totally different games.

James Pond is a unique aquatic look at the platform world. For those not in the know, James is a sea going Cod a playfish of MI6 and a pretty strong sprite. This fish secret agent must stop several disasters occurring and on the way defeat the evil Dr. Maybe, (a villain of uncertain intent).

Each of the twelve missions bears a name that relates to a certain other agent's films: for example View to a Spill in which James saves aquatics from oil slicks or Leak and Let die which needs the plucky sprite to plug oil tankers.

James is colourful and very smoothly animated, his screens and backdrops are equally well thought out and the various enemies and allies are humorously presented. James' only weapon is his ability to blow encasing bubbles from his mouth and these bubbles then need bursting to obtain rewards and bonuses as well as putting the opposition out of commission.

The screens each have a time limit in which to fulfil the task set the agent and quite often these quests need items that have been found on earlier levels, (these can be taken and kept at his underwater house for subsequent use). Each screen has a myriad of hidden entrances to enable all the variety of bonuses to be obtained be they the letters of James' name or teapots of life restorer or Jack Daniel's bottles to make him sleepy.

James Pond is an arcventure with a sense of humour and a logical progression. It is not always necessary in this game to go through the levels in strict order so if ever a level keeps beating you try a different screen first. One of the most important objects to find is the air helmet which allows James to stay on land much longer and thus complete some trickier missions.

This remains my favourite arcventure and I cannot recommend it highly enough.

RACE DRIVIN'

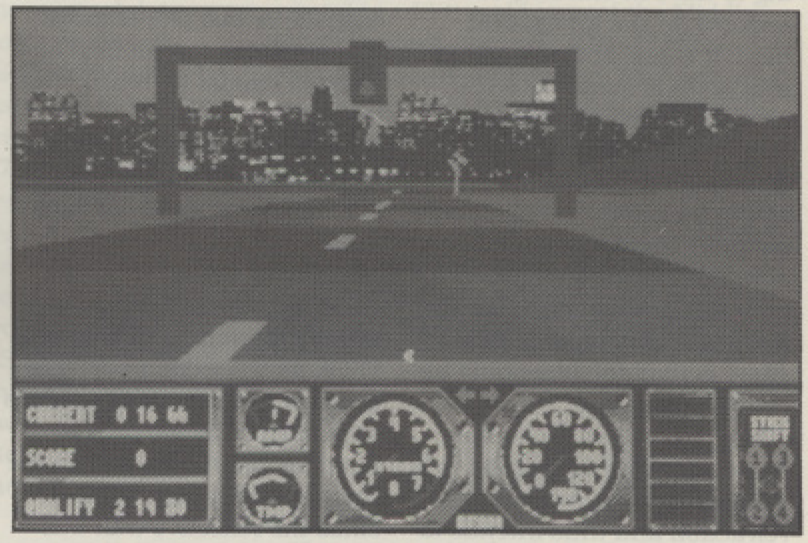
Those of you that have been around a bit will no doubt be aware of the fact that there have previously been two other Hard Drivin' type games. All of these have been converted from the Atari arcade originals, and, funnily enough, they've all looked almost identical!

This latest in the series is no different at all! It's basically a 3D point of view, polygon type, racer where you must get around a bunch of obstacle filled tracks in the quickest possible time. No marks for originality of concept!

The game is divided into three separate courses which range from a super stunt track, an Autocross type thing, and a speed track. Basically what this gives you is a choice between twisty turny up and over bits, bumpy lumpy bits or speedy speedy bits.

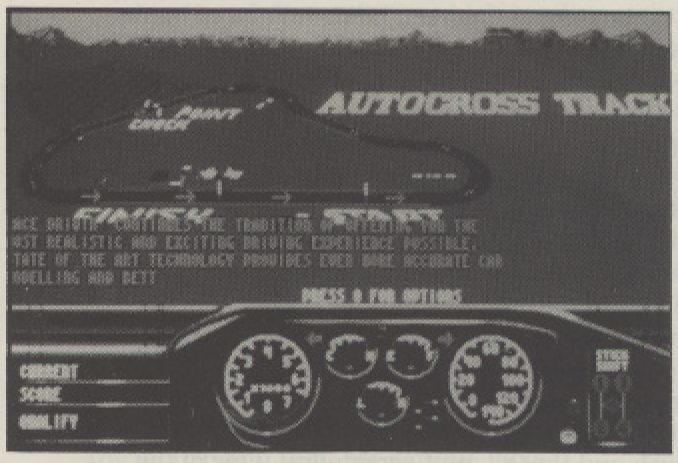
Of all the courses it is without a doubt that the stunt track comes off best. It is a great test of your driving skills and incorporates all manner of truly ludicrous obstacles including loop the loops, jumps and corkscrew sections! It's all fairly hair raising stuff that involves just slamming your foot down and trying to stay on the track.

The options section of Race Drivin' is a particularly important section and it is here that you can choose which type of car you are going to negotiate the track with. First off there's the Sportster, a tough resilient all rounder with decent acceleration and speed. Next, we get the Roadster, a real stickler for corners and finally the Speedster (really original names aren't they?) which is a real high performance jobby that only real men can handle (ahem).



As well as selecting the basic type of car you can also decide whether you want automatic or manual transmission, power steering or sluggish yucky steering as well as whether you want to drive with the mouse or the joystick. Well that's all the options, so what is it really like then?

Well, as with all racing simulators of this type it can get a bit sluggish when there's a fair bit on the screen. This does tend to get a trifle annoying as you find yourself wobbling about all over the place because the screen update can't keep up. On the stunt track this is especially annoying as it requires some fairly fine steering and you can often find yourself careering through the air towards a nasty crash!



The presentation of the game really isn't all that bad on the whole, but as usual with this type of thing, it could be much better if it were on a machine that could really cope with what is trying to be done. That isn't to say that there's anything wrong with the ST, it's just that the arcade original was a 32-bit affair with a load of custom hardware. Trying to keep up with that is asking a bit much!

You do get a nice cartoony type intro sequence when you boot the game up though, and this is all very nice with some gorgeous animation. It doesn't really add anything to the game, but so what eh? It's nice isn't it?

“ a competent arcade conversion ”

On the whole I thought that Race Drivin' was a competent arcade conversion. It doesn't exactly excel in any department, and it is a bit sluggish. However if you were absolutely crackers on the arcade version I'm sure you'd want to check it out. If you're searching for the definitive 3D racing game though, I suggest that you have a peek at Microprose's F1 Grand Prix which be out round about now!

- **SIGHT AND SOUND** *-Not bad really, a bit on the average side in the sonics department, and the screen refresh rate is nowhere near quick enough really*
- **GAMEPLAY** *- Personally I didn't really enjoy it all that much. The sluggish response, coupled with the slow graphics made it more infuriating than anything*
- **OVERALL** *- Have a look and see what you think. Personally, I don't think it's worth the ludicrous asking price ... but, you never know you might appreciate*

Title:	**RACE DRIVIN'**
Publisher:	**Domark**
Price:	**£29.99**
Reviewer:	**John Davison Jnr**

THE STOS COLUMN

In which Dion Guy brings you the latest news together with two great new programs to enhance your STOS listings

After last issue's sudden arrival of STOS 3D and Creative Dungeoneering, the STOS scene has again gone extremely quiet. Still, not to worry - the STOS column is here to bring you some more lovely listings! First though, a little bit of news.

Since last issue's review of **CREATIVE DUNGEONEERING** (CD), it has undergone a major overhaul. Now, instead of using STOS Basic routines for dealing with MIDI data, CD uses the STOS MIDI extension. The result of this being that CD is now much faster in dealing with data, which allows it to cope with more complex tasks. Anyway, the point is that CD is now even better than it was and is an unmissable piece of software if you have access to a ST MIDI setup. CD should be available from all major PD libraries by the time you read this.

READY TO TYPE?

Now onto the listings. There are two featured in this issue, **JOINER** and **FLASHY PROGRAM LISTINGS CREATOR (FPL).** Both are written by that multi talented programmer, Bruno Azzara. Here is a description of what each one does.

JOINER

This program takes MBK compacted screen files and places them one after the other into the same memory bank. The number of pictures you can store depends only on your ST's memory space. This program is incredibly useful as normally you could only store a maximum of 15 compacted screens in STOS at any one time (and then you wouldn't have room for sprites etc.). Now you can have as many screens as you want (memory permitting) in one bank, thus freeing up the other banks for other things.

After typing in and running the program, use the fileselector to load two MBK screen files. Make sure you only load compacted screen MBK files, as any other type of MBK files will ruin the whole process and you will have to start again. After you have loaded two files in you can then choose whether to add another file or save what you have done so far. Press L to load another file or S to save the current bank of screens.

When Save is selected, a fileselector will appear. Use this to save the screens under a filename with the 3 letter extender .GBP. Then the program will save two files - the compacted screens bank and an .ASC file with the same name as the screen bank file. If you now quit the JOINER program (press Q) and go to an unused program area, you can load in the .ASC file. The .ASC file is actually a Basic program that the JOINER program has created. The .ASC file simply displays the packed screens and is an example of how to access any screen in the bank.

To load the .ASC file just treat it like a normal .BAS file. The .ASC file loads in one line at a time onto the screen, unlike a normal .BAS file, but when it has finished loading you can list, run and edit it as a normal .BAS file. If you run it the program will load in the compacted screens bank and display all your screens in order, while waiting for a keypress between each one. If you list the program, you will see how to display a screen from the bank. You can then use the display routine in your own programs.

FPL

Using this program you can make your REM statements stand out by using inverse, underlined or shaded text. This program will also let you have a line 0 in your programs. FPL looks for codes in your programs and converts them into

```
10 rem *** MBK Compacted Screen Joiner - by Bruno Azzara - '92 GBP"
20 key off : mode 1 : curs off
30 dim PRT$(3) : for A=0 to 3 : read PRT$(A) : next A
40 data "Select first MBK file","Select second MBK file","Select next MBK file
to add.","Save Joined banks has *.GBP."
50 EXT$="*.MBK" : NUM=2 : FUNC$="" : palette $0,$300,$30,$777
60  :
70 rem  *** set up screen ***
80 locate 0,0 : paper 1 : pen 3 : print space$(80) : home : centre "MBK
Compacted Screen Joiner - by Bruno Azzara '91 GBP"
90 paper 2 : pen 3 : locate 27,11 : print "L - Add another MBK file."
100 locate 27,13 : print "S - Save the Joined bank."
110 locate 27,15 : print "Q - Abort program."
120  :
130 rem *** Load first two MBK files ***
140 NO=0 : gosub 520 : F1$=G$ : load G$,5
150 NO=1 : gosub 520 : F2$=G$ : load G$,6
160  :
170 rem *** Main bit ***
180 repeat
190 locate 0,1 : paper 0 : print space$(79) : locate 27,1 : paper 2 : print
F1$+" > "+F2$ : paper 0 : pen 3
200 rem *** Join the banks 5,6 to 7 ***
210 reserve as data 7,(length(5)+length(6))
220 copy start(6),start(6)+length(6) to start(7)+length(5)
230 FUNC$=FUNC$+"-"+str$(length(5))-" "+"*(scr="+str$(NUM)-" "+")"
240 inc NUM : paper 0 : clear key
250  :
260 rem *** Read the keyboard ***
270 K$=upper$(inkey$) : if K$="" then goto 270
280 if not(K$="L" or K$="S" or K$="Q") then bell : goto 270
290 if K$="S" then gosub 340 : goto 320
300 if K$="L" then erase 5 : erase 6 : bcopy 7 to 5 : erase 7 : F1$=F2$ : NO=2 :
gosub 520 : F2$=G$ : load G$,6
310 until K$="Q"
320 erase 5 : erase 6 : erase 7 : default : end
330  :
340 rem *** Save Joined bank ***
350 NO=3 : EXT$="*.GBP" : gosub 520 : EXT$="*.MBK"
360 if G$="" then return
370 locate 0,20 : centre "Saving the joined MBK bank"
380 N$=mid$(G$,1,instr(G$,"."))+"ASC" : bsave G$,start(7) to start(7)+length(7)
390  :
400 rem *** Save an example program, using the joined bank ***
410 open out #1,N$
420 print #1,"10 Key off:mode 0:curs off"
430 print #1,"20 def fn gbp(scr)=start(15)"+FUNC$
440 print #1,"30 open in #1,"+chr$(34)+G$+chr$(34)+":lgth=LOF(#1):close #1"
450 print #1,"40 reserve as data 15,LGTH"
460 print #1,"50 bload"+chr$(34)+G$+chr$(34)+",15"
470 print #1,"60 for scr=1 to "+str$(NUM-1)-" "
480 print #1,"70 unpack fn gbp(SCR) : rem SCR = The screen number to be
displayed."
490 print #1,"80 wait key :next scr"
500 close #1 : locate 0,20 : print space$(79) : return
510  :
520 rem *** Select file ***
530 G$=file select$(EXT$,PRT$(NO),1)
540 if EXT$="*.GBP" then goto 560
550 if G$="" then pop : goto 320
560 return
```

Program 1 - for joining .MBK files to allow more storage

effects. See the example program for a demonstration of how to use the codes. There are codes to turn the effects on and off. When the FPL program comes across a code in one of your programs it turns the appropriate effect on or off and then removes the code from your program. The codes are as follows :

!I+ = Inverse on
!I- = Inverse off
!S+ = Shade on
!S- = Shade off
!U+ = Underline on
!U- = Underline off
:0: = Line 0

To see how FPL works do the following. First, type in the example program and save it. Next, type in the FPL program. After saving it to disk for future use, run the FPL program. Now load the example program into FPL using the fileselector (see on screen instructions for what keys to press etc.). Finally, save the converted program and quit FPL. If you now load the converted program you will find that FPL has removed the codes and added the desired effects.

A few points about FPL. When you make a line into line 0, you have to make sure that the first thing on the line is a REM statement or else it will not work. If you have a line 0 in your programs, you will find it cannot be edited - only listed. The shade, inverse and underline effects are not just limited to REM statements - as seen in the example program. Also, you are not confined to using just one effect per line, you can mix them if you like (as seen in the example program).

You will find that FPL is a quick and easy way to add special effects to your listings. I have found that it is a great way to highlight different sections of your programs. When you are looking through a listing the effects really jump out at you - thus making things easy to spot.

ADIOS

So that's it for another issue - space is tight! I can be located at the following address. If anyone has anything they want reviewing, or have a listing they would like published - you know where I am! Don't forget, for a guaranteed reply enclose an S.A.E. Until next issue - bye!

Write to
Dion Guy
11 Shore Crescent
Bishops Waltham
Hants
SO3 1DZ

```
1 rem *** FPL - Bruno Azzara  GBP '92 ***
10 key off : mode 1 : curs off : scroll off
20 fade 1,$0,$556,$543,$210
30 dim CODE(6),CODE$(6),FUND(6,1),FT(6)
40 for A=0 to 6 : read CODE(A),CODE$(A) : next A
50 for A=0 to 6 : for B=0 to 1 : read FUND(A,B) : next B : next A
70 for A=0 to 6 : FT(A)=0 : next A : clw
80 locate 0,0 : centre "Flashy Program Listings, Creator."
90 locate 0,1 : centre "----------------------------------"
100 pen 2 : locate 0,3 : centre "Written by Bruno Azzara - V1.0 GBP '92"
110 pen 3 : locate 0,4 : under on : print space$(80) : under off
120 locate 0,7 : under on : print space$(80) : under off
130 locate 0,21 : under on : print space$(80) : under off
140 pen 1 : locate 0,6 : centre "Searching for the following codes :-"
150 locate 0,9 : centre "Inverse on   Inverse off   Shade on   Shade off
Underline on   Underline off"
160 locate 0,11 : centre "     !I+           !I-           !S+        !S-
!U+            !U-     "
170 locate 0,13 : centre "   0000          0000          0000       0000
0000           0000     "
180 locate 3,16 : print "Line 0" : locate 5,18 : print ":0:" : locate 4,20 :
print "0000" : locate 0,23 : centre "*** 'L mouse' to Load  or  'R mouse' to
Quit. ***"
190 repeat : MK=mouse key : until MK>0 and MK<3 : centre space$(50) : if MK=2
then default : end
200 while mouse key wend
210 ST=0 : gosub 400 : FT=0 : scroll off
220 pen 2 : locate FUND(ST,0)-1,13-7*(ST=6) : print ">" : locate
FUND(ST,0)+4,13-7*(ST=6) : print "<" : FOUND=0 : pen 1
230  :
240 rem *** Main loop ***
250 X=hunt(start(7) to start(7)+length(7),CODE$(ST))
260 if X=0 and FT(ST)=0 then locate FUND(ST,1),13-7*(ST=6) : print "Not Found"
270 if X=0 then inc ST : if ST>6 then gosub 330 : goto 70 else goto 220
280 if ST=6 then XX=X : repeat : dec X : until peek(X)=138 : poke X-2,0 : poke
X-1,0 : poke XX,7 : poke XX+1,7 : poke XX+2,7 : goto 300
290 poke X,CODE(ST) : poke X+1,7 : poke X+2,7
300 inc FOUND : locate FUND(ST,0)-1,13-7*(ST=6) : print "
";right$("0000"+str$(FOUND)-" ",4);" " : FT(ST)=1 : FT=1
310 goto 250
320  :
330 B$="'R mouse' to Cancel" : BB$="'L mouse' to Save"
340 locate 0,22 : if FT=0 then centre "No codes have been found press :-" else
centre "Some codes have been found press either"
350 if FT=1 then F$=BB$+" - "+B$ else F$=B$
360 locate 0,24 : centre F$
370 repeat : MK=mouse key : until MK=2 or MK=1 and FT=1 : while mouse key wend
380 if MK=2 then erase 7 : return else gosub 480 : return
390  :
400 rem *** Load file ***
410 on error goto 550 : N$=file select$("*.bas","   Choose Program to Convert")
: curs off
420 if N$="" then erase 7 : pop : goto 70
430 if instr(N$,".")=0 then N$=N$+".BAS"
440 gosub 590 : if R then 400
450 return
460  :
470 rem *** Save file ***
480 locate 0,22 : print space$(79) : locate 0,24 : print space$(79)
490 N$=file select$("*.bas","   Select File Name to Save.")
500 if N$="" then return else if instr(N$,".")=0 then N$=N$+".BAS"
510 locate 0,23 : centre "--- SAVING ---"
520 on error goto 560 : bsave N$,start(7) to start(7)+LPROG : centre space$(40)
: return
530  :
540 rem *** Test for disk errors ***
550 locate 0,22 : centre "DISK ERROR" : locate 0,24 : centre ">>> Press any key
<<<" : clear key : wait key : on error goto 0 : resume 400
560 locate 0,22 : centre "WRITE ERROR" : locate 0,23 : centre "Disk may be Write
Protected." : locate 0,24 : centre ">>> Press any key <<<" : clear key : wait
key : on error goto 0 : locate 0,23 : print space$(79) : resume 480
570  :
580 rem *** Test loaded file is valid ***
590 on error goto 640 : open in #1,N$ : LPROG=lof(#1) : close #1
600 on error goto 660 : erase 7 : reserve as work 7,LPROG
610 on error goto 670 : locate 0,23 : centre "--- LOADING ---" : bload
N$,start(7) : centre space$(40)
620 on error goto 0 : A$=space$(10) : A=varptr(A$) : copy start(7),start(7)+10
to A : if A$="Lionpoulos" then R=0 : return
630 locate 0,22 : centre "This is not a STOS BASIC program!" : locate 0,24 :
centre ">>> Press any key <<<" : clear key : wait key : R=1 : return
640 locate 0,22 : centre "FILE NOT FOUND" : resume 650
650 locate 0,24 : centre ">>> Press any key <<<" : clear key : wait key : centre
space$(50) : locate 0,22 : print space$(79) : on error goto 0 : R=1 : return
660 locate 0,22 : centre "OUT OF MEMORY" : resume 650
670 locate 0,22 : centre "READ ERROR" : resume 650
680  :
690 rem *** Code for effects ***
700 data 21,"!I+"
710 data 18,"!I-"
720 data 22,"!S+"
730 data 19,"!S-"
740 data 31,"!U+"
750 data 29,"!U-"
760 data 0,":0:"
770 data 4,1,17,15,30,28,41,39,54,52,70,68,4,2
```

Above - the Flashy Programs Listing Creator
Below - a simple example to show the utility in use

```
10 rem *** this is a line 0 *** :0:
15  :
20 rem *** !I+ This is inverse !I- ***
25  :
30 rem *** !S+ This is shaded text !S- ***
35  :
40 rem *** !U+ This is underline !U- ***
45  :
50 rem *** !I+!S+ This is inverse & shaded text !I-!S- ***
55  :
60 print "!I+ It works here as well !I- "
```

THINGS TO COME?

The European Computer Trade Show 1992

Damon Howarth treks down to the big city to check out the latest trade show

I have never been to one of the trade shows before and my invitation to attend this event in early April was a welcome one. For those readers that do not know, trade shows tend to be open only to retailers, pubblishers and press and quite often do not have a high attendance in comparison to the shows we are all used to. The interest in this show from my point of view was the support, or lack of support, for all things Atari and the attitude of the various software house representatives to my questions on the subject.

The show was held in the Business Centre Islington (the blue bit in Monopoly boards!) and was spread over three floors with some three hundred or so firms on show. Of those exhibitors some were of interest only to traders insofar as they were companies such as distributors offering large discounts to shops and the like to persuade them to obtain goods from them. Of interest to all Atari users though were the firms such as Alternative Software and Cheetah Joysticks. For the ST users firms such as Psygnosis, Ubisoft, Sierra On Line, Domark and US Gold were there. Electronic Arts had a strong presence as well.

My first chat was to the Sierra On Line representatives and from their point of view it seemed that the ST was no longer on their list of supported hardware, so it would seem that Kings Quest 5 and 6 may never see the drives of ST users. It was interesting to note here that they were predicting that even the Amiga would be likely to have only two more creative years left in it. The future as far as Sierra see it is with CD ROM and Multi Media.

Feeling somewhat depressed by this cold hardware vision of the future I was most pleased to chat with the Alternative Software people. They are specialising in the less supported machines and have a range of 8 bit Atari software for which they even have masters. Apart from one off sales of stock they were even willing to discuss making runs from their masters should demand warrant it. Alternative Software are on 0977 797777 should you wish to contact them.

Cheetah Joysticks were displaying interesting stock including Aeroplane control sticks that look and feel like the proper yoke, excellent for flight sim fanatics.

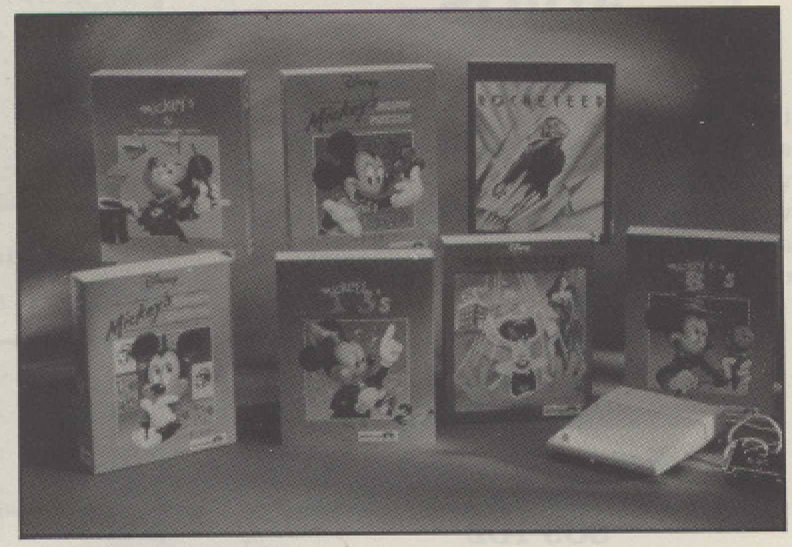
The friendliest company there who took time to give me a comprehensive interview were Psygnosis. Their PR representative explained their philosophy and demonstrated the "rushes " of several new releases to me. I may not be the first to release this news but there is a Lemmings 2 (no I don't mean Not More Lemmings). This is a new version with larger sprites and catchier music and they hope to have it out around about Christmas. I also received previews (on Amiga unfortunately) of a couple of other releases that are coming on ST - Leander and Obitus. These are both true Psygnosis colour and action games and, I am informed, graphics and game play will be more or less the same on the ST. If so then a treat is in store. There would also appear to be a Shadow of The Beast 3 in the works which will be a vast improvement on the disappointing Beast 2. They were even showing "rushes" of a new athletics type game which made great use of digitised pictures and even bases the graphical animations on the stop motion action of actual athletes. You too can be Tessa Sanderson! I was even informed that Psygnosis now have the rights to Dungeon Master and all its relatives and there is still discussion in Liverpool as to whether to release an improved Psygnosis style or to make a mass market re-release without changes.

Psygnosis left me feeling somewhat happier and so too did Mindscape who assured me that Ultima 6 would be arriving on the ST scene in the near future. Apart from that one release though this is another American rooted company that seems to feel the ST may not be supported much longer. Ocean and Domark had large private hospitality rooms and showed outward support for Atari 16 bit hardware if only in their compilation and budget lines.

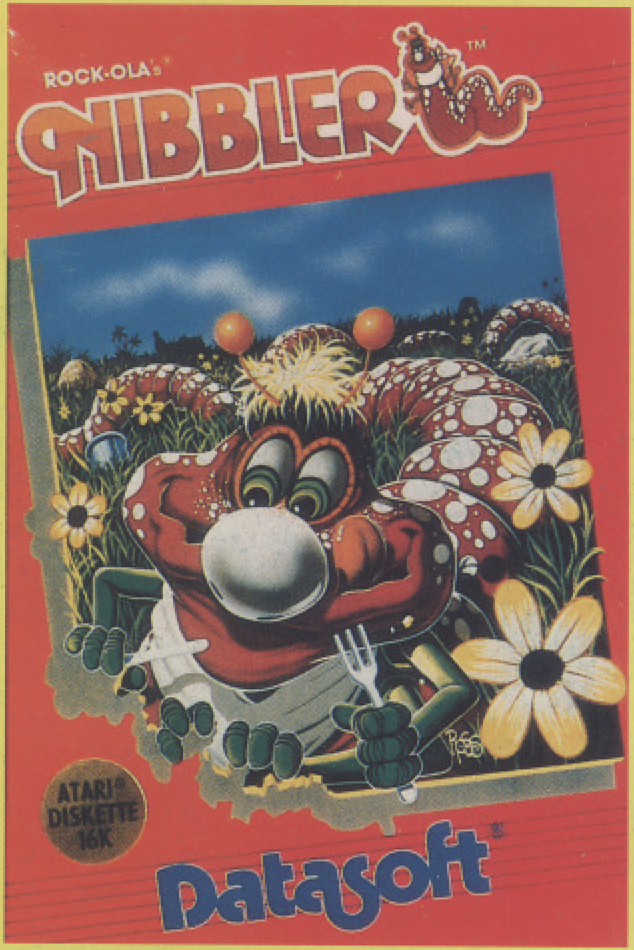
I was struck by the divide between the Games machine Sega/ Nintendo mentality and the Computer mentalities. Perhaps because of my own interests, the computer companies seemed to present a far more supportive and informative front than the Games machine companies. Computer folk, even large and corporate ones, maintain an effort with the public. Games Machine firms seem to desire the aloofness of a Garbo or the premiere placements of a movie hero.

So what were my final impressions? Mainly very sore feet from much walking, a nagging feeling that there is going to be a great change in the concept of computer software, and a satisfactory feeling that at least this year the ST still has a supported future.

My thanks must go to Ray and Darren of Syke Computers, Burnley for getting me in on the show for traders Sunday (complimentary tickets instead of £10+ that were charged at the door!) and to lots of software PR folk for their support and patience as I interviewed (pestered) them.



Exciting things to come from Infogrames



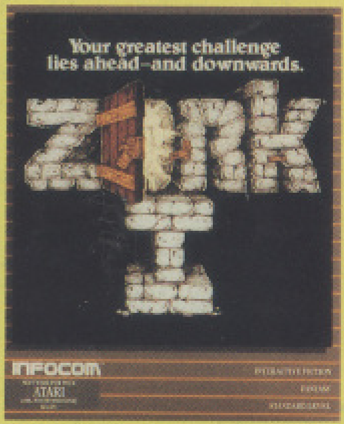
FREE

with orders over £10

*Yes a £9.95 Datasoft game absolutely FREE when you spend over £10 with the Accessory Shop. Check out the offers on this page and on pages 47 to 51 and send or phone your order. If it comes to more than £10 (excluding postage) we'll enclose a copy of this Pacman type game absolutely FREE if you ask for it.**

**NOTE the game is on disk only and we will not therefore include a copy automatically unless your order contains disks*

FULL DETAILS OF THE OFFERS AVAILABLE FROM THE ACCESSORY SHOP ARE ON PAGES 47 to 51. AN ORDER FORM IS ON PAGE 52



ZORK I — DISK ONLY

The Infocom classic and the adventure game that changed the way all future adventures were written. The Great Underground Empire of Zork is well documented by now and thousands of players have become addicts graduating to Infocom's more difficult adventures. Zork I is the ideal introductory level adventure for beginners or those with a little experience. If you have never ventured underground before now is the time to try, it's never been cheaper to expand your universe! Classic original Infocom packaging with excellent manual and a map.

OUR SPECIAL OFFER PRICE £2.95!

CHECK OUT THE ACCESSORY SHOP PAGES FOR MANY MORE BARGAINS!

LOWEST EVER PRICE ROMS!

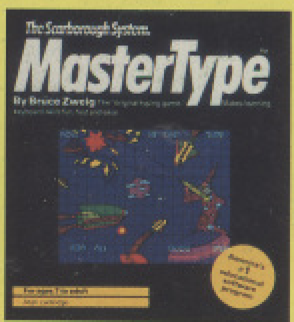


KABOOM

Challenge the Mad Bomber as he tries to bomb you out of sight. Can you catch his bombs and dowse them in time? Or would you like to be the Mad Bomber and try to flatten one of your friends? Lots of excitement for one or two players in this addictive arcade game that won awards for Best Audio and Visual Effects when it was first released. Simple yet addictive.

ROM CARTRIDGE

OUR PRICE £2.95



MASTERTYPE

Now anyone can learn to type whilst playing a challenging game. Mastertype was one of the original 'game based' typing tutors which requires you to zap enemy words as they approach from the four corners of the screen. But it not really a game for, before you realise it, you will become quite proficient on the keyboard as you progress through 18 lessons of increasing complexity.

ROM CARTRIDGE

OUR PRICE £2.95

SUPER SPECIALS

MAXWELLS DEMON

Check out the review in Issue 49. Paul Rixon found this simple game to be quite addictive and at this price can you afford not to become addicted! It's a different type of game, more in the Tetris mould than an arcade game. It sure makes you think and the price won't break you if you don't get fully hooked.

DISK ONLY — *Recommended price £9.95*

SUPER SPECIAL JUST £1.99

MR ROBOT & HIS ROBOT FACTORY

One of the most famous of platform games that has you jumping over fire, running over breadmills and bombs, climbing ladders, sliding down poles and more with some great graphics. Master all 22 screens if you can and then create your own for neverending fun. This is what platform games are all about.

DISK OR CASSETTE — *Recommended price £7.95 cassette/£9.95 disk*

SUPER SPECIAL JUST £1.99

ZAXXON

One of the all time classics for the Atari, Zaxxon set new standards when first issued and was copied many times. Pilot your craft across the unique 3 dimensional battlefield shooting enemy fuel tanks, anti-aircraft tanks and missiles before launching off through space for the ultimate conflict with a mighty robot - few have got this far! Zaxxon, often copied, never bettered and NEVER at this incredibly low price!

DISK OR CASSETTE — *Recommended price £7.95 cassette/£9.95 disk*

SUPER SPECIAL JUST £2.99

ALL ITEMS MAY BE ORDERED WITH THE ORDER FORM ON PAGE 52 OR BY WRITING TO THE ACCESSORY SHOP, PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR
CREDIT CARD ORDERS MAY BE TELEPHONED TO 0785 213928